MOVIES THAT TEACH

OTHER BOOKS BY THE SAME AUTHOR:

VISUALIZING THE CURRICULUM

FOCUS ON LEARNING

MOVIES THAT TEACH

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To My Father

AUTHOR'S PREFACE

THIS BOOK is addressed to three groups of readers:

First, to educational administrators, because they will make the major administrative and budgetary decisions as to whether motion pictures will become an active force in the educational programs under their jurisdiction;

Second, to producers of educational films because they will make the decisions as to what and how many films are produced and as to the techniques of teaching incorporated in them;

Third, to directors, supervisors, and coordinators of visual education in educational systems, institutions, and organizations, because they will establish liaison between teacher and filmmaker, they will promote the program among those who must support it and those who will execute it, and they will administer the program on the local level.

It is important that these groups understand one another's problems and points of view, and that they work together in the solution of problems to mutual satisfaction. Filmmakers must understand the point of view of educators. Educators must understand the problems of producers. Visual educationists must understand both. My contacts with each of these groups have been fortunate and congenial. I have tried to present the material in this book in such a way that it will lead to a realistic understanding of basic problems on the part of all concerned. I hope I have not so distilled the brew that it whets the appetite of none.

It must be clear from the beginning that while I have written at length about the Army film program, and have touched lightly on those of the Navy and other government departments, the opinions and judgments expressed in this report in no way represent the official or unofficial opinions of the War Department, the

Navy Department, or any other governmental agency. All opinions and interpretations are either mine or those of individuals with whom I have discussed them.

I have represented both the facts and their interpretation as I have seen them during the war from inside the Army Pictorial Service of the Signal Corps, which made, distributed, and advised on the educational use of films for the Army Ground and Army Service Forces, and made its films and facilities available to the Air Forces, the Navy, Marines, Coast Guard, and the Armies and Air Forces of our allies. I have seen the films mentioned in this report, and have examined research studies conducted by War Department agencies on the effectiveness of films. All statistics quoted are taken from official reports. From the mass of data on films in the war-training program I have selected only those which appear to indicate new or improved developments which have direct bearing on education in schools, colleges, and adult organizations. The overseas 16mm entertainment film program, the combat reports and campaign reports, the Army-Navy Screen Magazine reporting war and homefront developments to all servicemen, the newsreel use of War Department footage, and the industrial morale film program for factory workers are given only incidental note in the interest of concentrating on the immediately practical concepts, practices, and procedures that apply to organized education. I have perhaps erred on the side of omission to strengthen the case for what seem to me to be matters of greatest significance.

My notions of what is significant may be, and in all likelihood are, strongly influenced by my experiences. Had I served with the OWI, the Office of Education, the Navy Department, the Air Forces, the Department of State or other agencies with lively and extensive war film programs I would probably have couched this report in terms of the objectives and techniques particularly characteristic of these agencies. As it is, I believe, rightly or wrongly, that most of the important film developments of these other agencies have their counterparts in the films made by the Signal Corps' Army Pictorial Service, but that the reverse does not

hold. I hope that this report will in no way obscure the excellence and significance of film programs of these other agencies or deprecate their extent or their value.

Omissions in this report are not limited to the work of various war agencies other than the Army. There were many other developments in visual education in the war program that are important to education—mockups and models, posters, graphic portfolios, charts, book design and illustration, etc. Omission of discussion of these materials is partly the result of lack of *extensive* first-hand experience on my part with these developments and partly the result of the desire to concentrate on a few things in the interest of getting something done about them, rather than to overwhelm the reader with the magnitude of wartime progress that awaits attention.

The most outstanding things about educational motion picture developments during the war were the extent of their use by the armed services, the efficiency of their distribution, and the broadly enlarged vision of the scope of their usefulness. Long before the war, schools and colleges used films as aids in academic instruction, but progress was slow in making or using motion pictures in organized education so as to provide broad social orientation, to disseminate important information on social, scientific, and cultural developments, or to influence the moral conduct of both individuals and groups. Even in the purely academic field, educational films remained bookish, and educational thinking confined them to a bookish mold.

Now, as never before, educators and the public alike seem to be convinced that education must shed its bookish quality, and that it must deal vigorously and effectively with social issues and moral conduct. Our late enemies have demonstrated the effectiveness of organized education in teaching a set of moral principles (to us, immoral) so effectively as to dominate the thinking, feeling, and acting of an overwhelming proportion of the population. Their educational techniques and procedures were complete and effective —so much so as to throttle deviation of individual thought and

action. But they demonstrated the power of the educational process *as such* when all media of education are put to use.

We have lately discovered that commerce follows films. Ideas and enlightenment also follow them. We have seen this in films produced and used in the morale, information, and instructional programs of the war. More than ever is there need to mobilize these same resources to advance and disseminate the technology and morality of peace.

Before the story of the use of films in war training has been told, a few educators have hoisted storm warnings against wrong uses of films in teaching. It is difficult to understand the premature and tacit opposition to a force so little developed and so little tried in organized education, yet so thoroughly developed and so extensively used in the most intensive mass education program in the nation's history—war training and morale.

It is inappropriate for me to close this foreword without a note of appreciation to all those who contributed so much to the developments reported and to the preparation of this report. I am particularly indebted to Colonel Richard T. Schlosberg, whose vision and understanding of the rôle of motion pictures in education was responsible for the inception of so many of the great developments of the Signal Corps' Army Pictorial Service; to Colonel Melvin E. Gillette, whose organizing ability and appreciation of the part motion pictures were to play in the war effort were responsible for the early development of the Signal Corps Photographic Center and for the superb photographic coverage of the campaigns in North Africa, Italy, Southern France, and the mid-Pacific; and to Dr. Lester F. Beck, of the Department of Psychology, University of Oregon, who formulated the statistical reports and studies of film distribution and utilization, and assisted in training many of the Army's visual education coordinators—I express deep appreciation for the privilege of serving with them in the Signal Corps and of their unwavering devotion to the finest tradition of education and the part that motion pictures can and do play in it.

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MOVIES THAT TEACH

MOVIES THAT TEACH

1

MEASURED RESULTS OF TRAINING FILMS

In the face of unprecedented demands for training millions of men and women to win a war in the most effective way in the shortest possible time, the armed forces and other war-training and morale-building agencies turned to motion pictures and related visual media with unquestioning faith in their teaching values. During the years immediately preceding and throughout World War II, thousands of motion pictures were made and used on a scale which, in comparison to total possible audiences, exceeded the pre-war use of films both in entertainment and in education.

During the war educational films grew up, and ideas on what films should be used for in education, how they should be made so as to exert greater influence on their audiences, the ways of distributing films so that they fit closely into teaching programs, and the kinds of organization and services that are essential to wide and effective use of films in educational programs grew up with the films.

War-time developments in educational motion pictures have arrived at a time when they are most appropriate to education, for seldom has there been greater need for the peoples of the world to understand each other and to accept and act on high principles of individual, national, and international morality. The war that

advanced the power and usefulness of mass communication through visual media left in its wake problems far more complex than that of fighting a technological war, problems that can be solved only by the highest statesmanship of the individuals who make up social groups. As someone has said, "It is easier to fight for a principle than to live by it."

Since the fighting is over, and the principles remain to be lived by, it is important that the techniques so apparently successful—at least so widely used—in training millions of men and women in the hard lot of war be used in teaching them the harder lot of peace. "All wars," as St. Thomas Aquinas pointed out several hundred years ago, "are waged that men may find a more perfect peace than that which they had heretofore."

Among the techniques of war-training, the one single medium used to develop perhaps the greatest variety of worthwhile educational end-products was the motion picture. Because men needed to know how to operate many new machines, films were made and used to explain the principles basic to the machines and to demonstrate the skills necessary to their operation. Because men do not act in war as individuals only, but in coordination and cooperation with other men and other machines, films were made and used to report the latest activities of their comrades-in-arms. Because men do not act without emotions, because there are conflicts in men's emotions, loyalties, and values, and because men's acts ultimately depend on their choice of values and control of their acts, films were made and used that dealt with emotions, with choice of values, and with the directions of acts in terms of these values under the stress and strain of war and all that goes with it. Because war calls for supreme effort and because it must have meaning high enough and strong enough to evoke and sustain supreme effort, films were made and used to show the cause of the war, the plans of the enemy, and the efforts and sacrifices of the peoples of allied nations in the total war effort. And because all work or no work makes Joe a dull boy in war as in peace, films were made and used to bring him entertainment, scenes from home, familiar people and familiar doings on the screen, and with them an escape

for a few hours from the *ennui* of the barracks, the crushing fatigue of the combat zone, and the terror of waiting.

This last use of films is the familiar one. The other four—the educational—uses of films are not so familiar, except in the vision of educators and of the critics who have seen in the medium of the motion picture greater power than has been effectively used in the motion pictures made for the nation's schools, colleges, forums, libraries, churches, and union halls before 1942. The growth and development of educational films during the war aroused a new interest in their potentialities and in the ways these potentialities can be translated into reality in civilian education. "What lessons," educators, industrialists, labor and religious leaders now ask, "can we learn from the war-training film program that we can apply to improve our own teaching, our own morale, and our own training?"

It is a pity that the horror of war and the pressure to get it over with leaves little time for serious and systematic study of how we go about such a tremendous task, and which of the methods developed were most effective. That is the way it was with the training film program. There was little time for serious research in film techniques and in effectiveness of these techniques. But there was some research; there were extensive records of film use; and there was a great deal of experience crowded into a few short years of intense production and use of educational motion pictures.

Some of the research studies on the values of films in the war-training program will be summarized in this chapter. The broad scope of the Army training film program will be discussed in the second chapter, and the extent to which films were used will be treated in the third. The first three chapters, then, will present a brief summary of research data on the use and values of films in the Army training program, and a description of the kinds of films produced and the purposes they served. In the fourth chapter, attention will turn away from the war films to some of the principles which war experience seems to point to in production of films for postwar education. In the fifth chapter, some of the techniques which appear to have made war-training

films effective as a teaching medium will be discussed, and some of the advances that remain to be made in educational film techniques will be indicated. The pattern of film distribution and of film library services that worked so well in the Army and Navy and that appear essential to any substantial development of effective motion picture use in education will be treated in the sixth chapter; and in the seventh and last chapter, problems of physical and professional administration that require the concerted and coordinated efforts of a wide variety of agencies and individuals will be indicated.

RESEARCH STUDIES

The research studies on values of films in the Army training program were made by competent experimental psychologists. Some interesting and important data were compiled which shed light on the values of films in an educational program. It is not intended to summarize all Army film research findings here. Only those which reveal values not explicitly reported during pre-war years will be discussed. The purpose of this brief summary is to indicate the broad educational implications of some of these data, and thus partially answer the question of whether the extensive use of films was justified in the war-training programs, and, by implication, whether it will be justified in postwar education.

Before proceeding with a review of the studies of motion picture values, one of the most significant developments of the use of films in terms of areas and possibilities for films in school will be described. It deals with the use of film strips (a series of still pictures printed on a roll of 35mm film projected on a screen) in the special training program for teaching elementary reading and arithmetic.

Given the choice of rejecting thousands of men who had completed less than four years of elementary school education, or teaching them both to read and to understand enough arithmetic to be able to perform ordinary military duties involving number skills, the Army chose the latter course. It undertook to teach

men to read and to figure as well as to fight. With these "functional illiterates" the Army's reading program produced phenomenal results. In eight weeks of intensive instruction the average illiterate or non-English speaking selectee acquired the basic academic skills in reading and arithmetic required in military activity. More than 90 percent of the men who entered the Army as "functional illiterates" were taught to read and to do elementary arithmetic according to standards defined by educators.

A special textbook, *The Army Reader*, was written and published for this special educational program. It was made up in four parts, each geared to a different level of reading ability. If the selectee could not read at all, or very little, he began his instructional program with Part I. If he entered the Army with a little higher reading ability, he began with Part II; and so on. Upon completing each part he was given a test, and if he passed, he proceeded to the next level. When he completed all four parts, he was given a comprehensive test, and, if he made a satisfactory score, he was "graduated."

One of the most important parts of this teaching program was a series of film strips, intended to built up a background for reading and an opportunity for increasing reading vocabulary by presenting a series of pictures in which the printed names of objects were associated with pictures of the objects themselves. These film strips, like *The Army Reader*, were developed around the common, everyday experiences of the soldier, his uniform, his food, his duties, his camp, etc. There were additional film strips on arithmetic, and others on language—nouns, verbs, and prepositions—all related directly to the Army life the selectee was living. These film strips were generally shown before the classes were introduced to the basic reading and arithmetic texts, thus laying the foundation and building a "readiness" for reading and the development of abstract number concepts. They were repeated as often as necessary, and were shown many times during the instructional period, as were other visual materials such as especially prepared news maps and illustrated magazines. One of the secrets of this instructional program, and of the part film strips

played in its success, was that the materials of instruction were prepared within the framework of the interests and activities of the learners and that film strips and reading materials were prepared to complement each other—the film strip laying the visual basis for learning the abstract symbols, both of words and numbers, and the readers representing in words the experiences presented first in the pictures.

The results of the Army's literacy-training program present interesting and valuable possibilities for an approach to the teaching of reading and arithmetic through the use of closely correlated films and reading materials, produced for use one with the other. The ease with which objects and word- or number-symbols of these objects may be associated in a film suggests that a wide use for films may be found in teaching elementary educational skills, such as reading, numbers, writing, art, etc. While there was no separate measure of the effectiveness of the film strip as such in the Army literacy program, it was reported that the combined use of film strips and readers as integral and component elements of the teaching procedures resulted in more than 90 percent of the selectees reaching acceptable standards of reading and number skills in the short and intensive teaching program.

From other research reports, and from observations made during research studies, five values of educational films with general implications for postwar education are indicated. These values deal with the effects of films in terms of educational backgrounds and abilities of the audience, the value of film showing in comparison with an equivalent teacher-presented lesson; the value of film showing with and without careful audience preparation before the screening; the value of films in developing cooperation and teamwork; and the value of films in stimulating independent activity in application of the subject presented in the film.

Experimental evidence from Army film research indicates that the amount learned from films (particularly those geared to an adult audience as were Army films) varies with the educational background and with the intellectual ability of the audience, but

with rich or poor educational background and with high or low intellectual ability some learning results from film showing.

Two studies conducted by the Research Branch of the Army's Information and Education Division supply interesting data on the relationship of the background of the audience to the amount of learning from a film. In the first of these two studies, the Army orientation film, *Prelude to War*, was shown to a group of inductees in order to determine its effect on their information concerning the events leading to the war, and the consequent morale value of this information. *Prelude to War* is an adult film in every respect. It is adult in point of view, technique, and concepts. In the study under discussion, this film was shown to a group of selectees which was matched in number, age, and educational background with another group to whom the film was not shown. This latter group is designated as the control group. The same test on the subject-matter of the film was given to both groups so that the amount learned could be determined by comparing the test scores of the two groups. The results, tabulated in terms of percentage of test questions correctly answered, are shown in Table I.

TABLE I

INFORMATIONAL EFFECT OF FILM SHOWING

Educational Level	Groups Measured	Percentage Correct Answers
GRADE SCHOOL	Control Group	30%
	Film Group	41%
HIGH SCHOOL and COLLEGE	Control Group	44%
	Film Group	61%

It will be noted that both the film and the control groups are divided into sub-groups, according to their educational backgrounds, so that the percentage of correct answers to the film test

is shown for those with no more than grade school education and for those having at least some high school or college education. In this way, the effect of educational background on the amount of information learned from a film can be determined.

Those selectees in the control group with no more than grade school education answered 30 percent of the film questions correctly without seeing the film, while those with high school or college education answered 44 percent of the questions correctly. Thus, it can be seen that there was a difference in their amount of information on the subject, independent of the film showing—a difference of 14 percent of correctly answered questions on the background of the war. A similar comparison of the grade school and the high school and college educated selectees who saw the film during the experiment reveals that the former answered 41 percent of the test questions correctly and the latter 61 percent —a difference of 20 in percentage of questions answered correctly.

It is to be noted that both the grade school and the high school or college educated selectees learned something from the film, but that those whose educational background included high school or college experience learned more, as measured by percentage of questions answered correctly, than those whose educational background was limited to grade school.

It may or may not be significant that the grade school selectees who saw the film answered 41 percent of the questions correctly while the high school or college selectees not seeing the film answered only 44 percent of the questions correctly. It is an easy temptation to over-interpret the small difference between the two groups, and to jump to the conclusion that films can be used as a quick and easy method of up-grading the informational background of those with less formal education to the approximate level of those whose formal education has been greater. There is little doubt that films have considerable value in increasing the knowledge of men and women who completed their formal education in grade school, certainly with reference to specific items of information dramatically portrayed in films. It is interesting to conjecture the effect the use of films in school might have had on this group

while in school, not only in increasing their informational learning, but in providing learning opportunities which permit of such immediately discernible learning achievement as indicated by the difference between 30 and 41 percent of correctly answered questions on the subject-matter covered by the film. There are several factors which cause boys and girls to drop out before reaching or finishing high school. One is that the school has little holding power—it fails to satisfy the need for success, for security, for enriched experience in the things that are important to boys and girls, and to their parents, and their community. Grade school can be and often is dulled by "book learning" about remote people, places, and principles, and by formal training in skills removed from the context of life and the world round about. Films can change this, or they can help to change it, and make education much more interesting.

But seeing a film does not, as often supposed, appear to make people more alike. The test results from this experiment indicate that a film increases the differences between groups already different in educational achievement. In percentage of test questions answered correctly, there was greater difference in the film group between grade school educated selectees and high school or college educated selectees than in the control group which did not see the film.

Other data on the difference in the amount learned from a film in terms of learning ability, or "intelligence," were revealed in a study of the use of a film dealing with map reading, discussed in greater detail later in this chapter. In Table III, presented and discussed with reference to the value of audience preparation prior to film showing, the percentage of new material imparted by a film is tabulated for higher intelligence and lower intelligence groups—"intelligence" in this case being defined as that quality measured by the Army General Classification Test.

As is evident for the factor of formal education, the amount of learning from a film also appears to vary according to the intelligence of the audience. For the higher intelligence group, there was a 20 percent increase in material learned from the film, while for the lower intelligence group, there was only a 6 percent in-

crease. This difference appears even greater than the difference indicated by formal educational background, but the differences are not strictly comparable, since different groups, different subject-matter, and different kinds of tests were used in the two experiments. However, the two experiments add up to the fact that *the more the audience brings to an educational motion picture, the more the audience gets out of the picture.* With films it seems to be a case of "to everyone who has shall be given."

The relationship between the ability described as intelligence and amount learned from films has been investigated in previous research on the use of films in school, but its broader implications seem to be dramatized by the test results shown in Table III. These are further dramatized in Table VII in Chapter VI, where the effects of showing more than one film at a single session are discussed. Films are no panacea for low intelligence, or for lack of formal education, but, promising enough is the fact that they are apparently intelligible to high intelligence and low intelligence groups, and to groups with only grade school and with high school and college education, although not equally so.

How well adults learn from films in comparison with other lesson-presentation is indicated in a study conducted by the Research Section, Army Pictorial Service, of a lesson taught entirely by a motion picture and a similar lesson taught by an instructor, selected for his competence, and using a scale model demonstration. Before discussing this experiment, it is pointed out that the experiment simply involves a film showing in comparison with a scale model demonstration by a competent instructor in the technique of assembly and disassembly of a portable radio station—a mechanical operation—and it does not involve any of the other kinds and objectives of training and education. But the experiment does involve a valid comparison in media of lesson presentation. This word is inserted to guard against generalizing the results to include all kinds of learning experiences and all kinds of educational objectives.

Four "green teams" of nine men each were taught to assemble and to disassemble a portable radio set. The "rotating group"

technique of experimental control was used. Each group was taught by both instructor and by film. In two groups, the film was used to teach the assembly procedure, and the instructor-lecture to teach the disassembly procedure. With the other two groups, the teaching process was reversed.

The experimental situation was created in violation of approved Army instructional technique in film use and contrary to the procedure of educational film use that has long been advocated. The men were simply marched into a room, shown the film without comment of any kind, and then, without further instruction, set to work assembling or disassembling the apparatus. This was done in order to observe the "pure" effectiveness of the film.

Results were carefully observed and the time required to complete the assembly and disassembly was tabulated. The groups which were taught their tasks by the film completed these tasks in a little under 7 percent less time than was required by the instructor-taught groups.

After the experiment the men were interviewed as to their opinion of the relative effectiveness of the film and of the instructor. Half the group felt that the instruction with films was better. A third of the group was convinced that the instructor's lecture was superior, and the remainder of the group thought the two were about the same.

The gist of the results is contained in the following quotation from one of the men interviewed:

"The lecture and films were about the same, but I'd say that it might have been very much different with a different instructor. Some of the instructors—I don't want to mention any names—just don't know anything about what they are going to teach. I think with a poor instructor, the films would have been better."

As judged by results obtained in this experiment a training film is at least equivalent in instructional effectiveness to a comparable lecture-demonstration by a competent instructor. In fact, the results from the film showing were slightly better. Were a poorer instructor used in the experiment, the advantage in favor of the films would likely have been greater. At the very least, the results

indicate that poor instructors can improve their teaching by using films.

What happens when good instructional procedures are applied to the use of films is revealed in a third experiment, reported by the Research Branch, Military Training Division, Army Service Forces. As already indicated, no instructional procedures were used to introduce the subject of the film in the previous experiment, nor were there any review exercises. The film was merely shown and immediately followed by the application of the teaching to a field exercise.

This next experimental study was made in an area of instruction comparable to the academic teaching carried on in high school or college in that the subject taught—elementary map reading—dealt with sign representation and sign interpretation. Four groups of approximately two companies each, were used in this study. They were matched on educational background and on their scores on the Army General Classification Test. The experimental procedure was essentially as follows:

One group, the control group, was administered the test on map reading but received no instruction in the subject. In this way, the amount known about the subject before instruction was determined.

A second group was shown the training film on map reading during a one-hour session of training films.

A third group saw the film preceded by a brief introductory exercise in which parts of the film were outlined and clarified by the instructor.

A fourth group saw the film followed by a short oral quiz reviewing the material covered in the film.

By comparison of test results from the last three groups with those of the control group it was possible to determine how much was learned from the simple showing of a film, how much was learned when the film showing was preceded by introductory explanatory remarks, and how much was learned when the film showing was followed by a short quiz.

Before proceeding with a discussion of these results, it should be understood that as in the case of other test results reported in this chapter, the average percentage of new material imparted by

the various methods of film showing are to be interpreted as comparative indices, not as absolute measures of the total amount

TABLE II

EFFECTIVENESS OF TYPES OF FILM INSTRUCTION

Type of Instruction	Percentage of New Material Imparted
Film Only	12%
Film Plus Quiz	16%
Introduction Plus Film	19%

learned from these methods. The test used in this experiment was carefully developed, and as is usually true with experimental test construction, those items which did not clearly discriminate between lowest and highest learning groups were eliminated. Thus, the 12 percent of new material learned by the film group does not mean that the knowledge of map reading of this group was increased exactly 12 percent by the film showing. The 12 percent increase is to be regarded as an index to the amount learned as measured by a test constructed for the purpose of *discriminating learning by means of critical items in a test* rather than *measuring the exact amount* learned from the film.

The tests reveal results of two kinds of instructional procedure in film showing as compared against the simple showing of a film without the use of any other instructional procedure. The percentage of new material learned from simple film showing was 12 percent, the percentage learned from the film followed by a quiz was 16 percent, and the percentage learned from the film preceded by introductory explanatory remarks was 19 percent.

By comparing the percentage indices, as tabulated in Table III, it can be seen that *when the film showing is preceded by introductory remarks which explain difficult parts of the film and prepare*

the audience for purposeful and intelligent observation, the learning index (19%) is over half again as great as when the film is shown without such introductory and motivating exercises (12%).

TABLE III

TYPES OF FILM INSTRUCTION AND ABILITY LEVELS

Intelligence Groups	Percentage of New Material Imparted	
	Film Only	Introduction Plus Film
Higher (AGCT Classes I & II)	20%	26%
Lower (AGCT Classes III & IV)	06%	14%

TABLE IV

EFFECTS OF INTRODUCTORY REMARKS ON TOPICS COVERED

Topics Covered	Percentage of New Material Imparted	
	Film Only	Introduction Plus Film
Explained in Introductory Remarks	06%	16%
Not explained in Introductory Remarks	23%	30%

When the film showing is not preceded by such exercises, but is followed by a short quiz, the learning index (16%) is about one-third again as great as when the film is shown without this kind of follow-up exercise (12%).

That the better results obtained from introductory remarks hold true for both the higher and lower intelligence levels of the audience can be seen in Table III. With the higher intelligence levels, as measured by the Army General Classification Test, there was a 20 percent gain in new material imparted by the film when the film was shown without introductory remarks, and a 26 percent gain when introductory exercises were employed. In other words, there was a 6 percent difference in learning index with the higher intelligence groups when the film showing was preceded by introductory remarks by the instructor. With the lower intelligence groups, there was an increase of only 6 percent of new material when the film was shown without introductory remarks, but this percentage was raised to 14 percent when introductory remarks were used. Thus, there was an 8 percent difference in the learning index of lower intelligence groups in favor of the instructor's introductory remarks. From these data there appears to be little danger that brighter people in the film audience will suffer from good pedagogical methods in the use of educational films, or that the duller will be left unaffected by them. *In the case of both brighter and duller groups, there was an appreciable increase in learning from a film when the film showing was preceded by the instructor's introductory explanatory remarks.*

The research study from which these data are quoted revealed another fact of considerable significance. The instructor's introductory remarks prior to a film showing seem to have a radiating effect, so that not only are some of the more difficult points of a film explained and clarified in advance, but the audience is also stimulated and motivated to attend more closely to the entire film.

This radiating effect is demonstrated in Table IV. By examining the table it can be seen that the learning index on those parts of the films which were explained in the introductory remarks rose from 6 percent to 16 percent when the film showing was preceded by

introductory remarks, a gain of 10 percent. On those parts of the film which were not explained in the introductory remarks, there was an increase from 23 percent to 30 percent in the learning index, a gain of 7 percent, when the film showing was preceded by the instructor's preliminary explanation, even though the explanation did not specifically cover the material covered in this gain. Thus, it can be seen that *by the use of competent instructional procedures preceding the showing of a film, there is an appreciable increase in audience learning, not only of those parts of the film explained in the introductory exercises but also in other parts of the film as well.*

Other results of the use of films were observed in the course of the experiments reported, although no quantitative data are available to substantiate the observations of the experimenters and the training officers who participated in the experiments. Two interesting observations were made by the experimental psychologist who conducted the study of the use of films in teaching the assembly and disassembly of a portable radio set:

1. The men to whom films were shown performed more as a team than did those to whom the films were not shown, and
2. They required less additional on-the-job instruction.

It may well be that these outcomes were as significant to the training program as are the more conventional educational outcomes associated with film instruction, i.e., learning more facts and remembering them longer.

Analysis of the kinds of films from which improved teamwork has been observed indicates that such an outcome may be the natural result of film presentation. The films used deal with team performance in the assembly and disassembly of technical equipment. While the duty of each man is shown in detail, it is shown with reference to the duties of other members of the team and to the complete operation. When the film is shown, each man *learns as a member of a team.* It is next to impossible to achieve the context of this teamwork in a lecture with a scale-model demonstration. Yet it is the most simple and obvious method of presentation in a mo-

tion picture. Having learned in the context of team performance, it is natural that the men will perform in this same context.

How far teamwork can be taught in and out of school with educational motion pictures is an open question. It is certainly deserving of trial and experimentation in education. Films which show students or adult groups, or both, working together in the solution of common problems—problems of health, of interracial cooperation, of industrial development, of local employment, of management and labor teamwork, of inter-denominational activity, etc.—hold promise for effective education in the fundamentals of community living. These are, of course, higher levels of teamwork and cooperation than those shown in training films dealing with mechanical operations.

The other observed outcome—the stimulation of activity without the prodding of a tutor and without the necessity of continued detailed tutoring—also holds promise and challenge for education. The fact that the groups taught by means of films required less on-the-job instruction by the teacher means that there was more *independent* learning by the film group. To the extent that additional instruction is unnecessary, or to the extent that this necessity is reduced in degree, the learning from the film was independent learning. The group did not lean on the instructor for additional help. While far from learning their job completely from the film, the group taught by the film seemed to have a better idea where to look for parts and where parts were supposed to fit, and they proceeded to fit the parts together, to couple cables, to balance beams, etc., on their own initiative. In contrast to this, the group that had been taught by the more conventional lecture and scale-model demonstration required more help from the instructor when it came to the actual assembly and disassembly of the radio set. To the extent that the group leaned on the instructor for this help, the learning was *dependent* learning.

If films did nothing else but motivate students to independent activity, to explore new fields of interest with greater confidence, to pursue subjects beyond their superficial aspects, and to apply what is shown from films and related experiences to everyday intel-

lectual and social behavior, their place in the school and college curriculum and in adult education would be completely justified. The Army film program did not definitely prove this to be true. It did, however, indicate that more independent learning resulted when films were used than when they were not.

IMPORTANCE GIVEN FILMS

The war-training film program did more than demonstrate important educational values of films. It brought a change in thinking on the rôle of films in communicating ideas and information, and in shaping conduct and strengthening values.

In the war-training program, particularly in the armed forces, motion pictures were conceived of and used as basic teaching materials—at least equal in importance to books, lectures, problems, and other materials and procedures of teaching. The training films were planned by the same agencies that planned the training manuals, the posters, the film strips, the synthetic training devices, etc. Each of these materials had its own place in the training program. Each had its own job to do. Each complemented the others in providing experiences which enriched, deepened, and strengthened the mastery of the subject taught.

Films were also produced and used independently of other teaching materials. They were intended to carry a heavy burden of proof, dependent neither on the instructor nor on the textbook. When word of the horrifying conditions in German concentration camps liberated by American and British troops began to spread in newspapers and over the radio, there was an instantaneous recognition by the general public, by radio commentators, by army officers, and by statesmen, of the necessity for motion pictures of these atrocities, both for the American and the German public, particularly for the latter. Newspapers and radio were full of wordy accounts of the atrocities. Yet, the inadequacy of these media to convey the basic truth of the situation was generally recognized. Only pictures could convey the reality of the situation for those who could not visit the camps. Photographic

officers and enlisted personnel of the Army, with their usual sense of the power and the rôle of pictures, were on the spot and their camera coverage was characteristically timely and complete. These films were shown to high-ranking Nazis, to German prisoners of war, and to the German, British and American public, with dramatic results. Their educational power was self-evident before they were produced.

Another example of the paramount rôle assigned motion pictures during the war is the film, *Two Down and One to Go*, which explained the redeployment program and the points system of discharge upon the fall of Germany. This film was made many months before the Nazi collapse. It was the basic medium upon which the War Department depended for thorough explanation to American troops all over the world of redeployment to the Pacific and release of veterans from service by the point system of discharge. It is no less remarkable that this film was shown to over 90 percent of the American troops all over the world in less than ten days, and that practically every American soldier in uniform, even in the remotest foxhole in the remotest corner of the globe, saw the film within three weeks of the date it was released for showing. This exhibition record is an index to the remarkable system of film distribution and utilization developed by the Signal Corps' Army Pictorial Service.

Examples of motion pictures which played a dominant rôle in the Army's training, orientation, and information program can be multiplied. The famous *Why We Fight* films, the *Fighting Men Series*, the films *Introduction to the Army*, *AWOL and Desertion*, the films dealing with malaria and malaria control, with military security, etc., all fall into the class of basic teaching materials.

The prewar conception of educational motion pictures as "supplementary aids" only, has had a stultifying influence on the development of effective films for use in civilian education. As long as films are conceived primarily as "supplementary aids," it is extremely unlikely that the full force of the motion picture to convey important information and ideas, to build up attitudes,

and to influence thought and conduct will be brought to bear in organized education.

American children, adolescents, and adults are a movie-going people. Many of them are movie-chasing. The competition of educational films is not with teachers or with textbooks, but with the motion pictures people see in the downtown or the neighborhood theater. This competition is not for time in the lives of these people, but for influence on the orderly *vs.* the chaotic development of ideas, attitudes, and norms of morality and conduct. The result of such competition is a foregone conclusion when the educational motion picture is merely a bookish, woodenly academic ten-minutes of "supplementary aid."

2

THE PATTERN OF FILMS

ONE OF THE MAJOR contributions of the war-training to the educational motion picture is the enlarged concept of the purposes for which films can be successfully employed in a broad educational program. Before the war, films had been made and used by schools and colleges primarily for classroom instruction in technical subjects, and, on a more limited basis, for training in technical skills. The Army made and used a great many films for these same purposes, but it proceeded beyond the field of technical instruction. It produced and used films to show the background of the war and the things the nation was fighting *against*, to keep the men informed on current progress in the development of weapons and materials of war and of military progress on all world battle fronts, and to teach an understanding and control of basic emotions and patterns of conduct when the soldier is "on his own" in the line of duty, on furlough, or in enemy prison camp.

In developing films for these important educational purposes the Army applied to educational films the dramatic techniques hitherto used only in entertainment films. These techniques resulted in films which were emotionally possessive as well as intellectually stimulating, and, as a consequence, Army films penetrated deeper into the recesses of the human mind than do school films which coldly present a series of related facts without relating these facts to the backgrounds, interests, motives, and actions of the people to

whom they are shown. Behind the developments in Army films was a broad concept of the dynamics of human behavior, an empirical understanding of the reasons why people behave as they do, and a positive approach to the direction and control of human behavior. In the past, schools and colleges have been primarily concerned with what people know, assuming that what they know will influence what they do. The Army, on the other hand, was responsible for what men do as well as what they know, and, to make this responsibility even greater, for what men do under conditions which frequently call for supreme sacrifice of life or body. Its films, therefore, dealt not only with *what men must know* but also *what men must do*, and *why they must do it.*

In order that its men be brought to a mental state where they were willing to make the sacrifices they were called upon to make, and to perform the duties they were called upon to perform, the Army made and used films which showed the nobility of *the cause* in which they were engaged, the morality of individual conduct under stress of strong emotion, the progress of their fellowmen in furthering the *cause* in other ways and other places, and the principles and performance of technical operations that must be learned and performed with speed and efficiency to ensure the triumph of the *cause* the men were called upon to defend. In this way, films were used to weave the threads of moral and social meaning into the fabric of military life and effort.

Films can be used as effectively by schools, colleges, and social groups such as churches, community organizations, labor unions, industrial organizations, etc., to weave threads of moral and social meaning into the lives of their people, and thus into the life of the nation and the world in pursuit of peace.

To summarize briefly, motion pictures were used by the Army to accomplish four educational objectives:

1. Orientation in the moral purposes for which the war was fought, the nature of our allies and our enemies, and the importance of the part played by various components of the Army.

2. Understanding of and habituation in self-control and proper conduct of the individual soldier.

3. Information on current materiel development and military progress on all fronts.
4. Instruction in basic technical subjects and skills.

The contrast between the broad purposes for which motion pictures are used by the Army and the narrow purposes for which they were used before the war by schools and colleges is dramatized, even if a bit unfairly to some schools, in the following chart:

CHART I

MAJOR PURPOSES OF FILM USE BY ARMY AND BY SCHOOLS

The Army	Educational Purposes	The Schools
√	Orientation	
√	Conduct	
√	Information	
√	Instruction	√

As indicated here, films have been used by schools and colleges largely for academic instruction, and not for purposes of general information, habit formation in good conduct, or general moral and social orientation. It is, perhaps, this limited concept of the rôle of motion pictures in education that has been responsible for the painfully slow development in the use of films by schools and colleges. Perhaps, even deeper, is a limited concept of the rôle of the school and college in the education of children and youth.

ORIENTATION FILMS

In general, the Army's orientation films covered the background and issues of the war and the missions of the various branches of the Army. Those covering the former were technically known as Orientation Films. Shown to all Army personnel, they consti-

tuted an important element in the Army's official orientation program. *Prelude to War* portrays the rise of the Axis powers and their challenge to the free world, and traces the causes and events leading to World War II. *The Nazis Strike* carries the story of Axis aggression from 1935 through the Polish campaign, to the declaration of war on Germany by Great Britain. *Divide and Conquer* shows the invasion of Norway, the campaign in the low countries, and the conquest of France. *Battle of Britain* depicts historic and dogged resistance to the air blitz, and the survival of Britain against what seemed to be insuperable odds. *Battle of Russia* shows the German invasion of Russia and the tremendous struggle over frozen steppes to and through the crucial defense of Stalingrad. *War Comes to America* is the account of America's slow and hesitating realization that forces of aggression were loose in the world, of her attempt to stay out of war's way, and, finally, of her reluctant entrance after Japan's sneak attack at Pearl Harbor. The story of Japan, what she is, how she got that way, and what must be done was in final stages of production when the atomic bombs fell on Japan. *This Is Germany* recounts Germany's repeated aggressions since 1870, the nature of the Nazi and the Nazi mentality of defeated Germany, and of the need for constant alertness in the occupation of Germany by American forces. *The Negro Soldier* tells of the contribution of one of America's great minority groups to the war efforts. *The Negro Sailor* is the Navy's counterpart. The Navy also made wide use of the Army's *Why We Fight* series, listed above.

While these and other films in the Army's orientation series deal with the basic morality of America's struggle against the enemy, they involve none of the "preaching" approach that is sometimes confused with effective moral teaching. They are a brilliant blending of pictures, commentary, music, and sound devices, and they have a tremendously moving effect on their audience. They give meaning to the struggle against the Axis and against Axis concepts in America. They *show* the Axis plan of world conquest and the horrible stages in the execution of this plan in Europe and in Asia. They clearly and dramatically *show* what

we were fighting *against*. In this way, they underlined the moral meaning of the war and they gave a broad moral purpose to the acts that soldiers are called upon to perform, and the sacrifices they are asked to make in the war effort. They taught why we fought.

Careful research studies were made of reactions of soldiers to most of these films. At the time of this writing security classifications of the results of these studies had not been sufficiently removed to permit a detailed review of the findings, but it is giving away no information of aid and comfort to the enemy to summarize three major results of the use of these films:

1. They had a positive effect in strengthening
   a. belief that dictator nations seriously threaten our way of life,
   b. concern about a better world after the war.
2. They added significantly to the factual information the men had on the background of the war and the events that led to it.
3. They made the men more aware of the magnitude of the problem of defeating the Axis powers. Significantly enough, they had a reverse effect with the better educated, and, if anything, tended to reduce the concept of magnitude. It is an interesting speculation that with the better educated, motion pictures, being specific rather than vaguely general, reduce the halo effect attached to a concept built up by newspaper headlines and radio newscasts.

Popular writers who have seen some of the *Why We Fight* films in public theaters have been impressed with the educational possibilities of films such as these in teaching modern history in schools and colleges. The fact that many of the orientation films were assembled from other films made at the time the events transpired, and that they were compiled and edited into a single documentary film portraying the sequences and inter-relationships of these events, has inspired these writers to envisage a new kind of history-teaching material.

The photographic record of the words and deeds of the past and of their consequences in terms of today's problems offers great promise for more effective teaching of "living history." But it is to be remembered that the Army's *Why We Fight* films were more than "history" films. They were films which interpreted history in terms of the struggle which the men who saw the picture were expected to carry to successful conclusion. They were produced on the assumption that the Army of the United States would execute its mission with the determination that grows out of conviction if the men who made up that army were thoroughly aware of the nature of the enemy's threat to the things America stands for and Americans believe in. In this broader sense, they taught "living history."

A second kind of film, not known technically as an Orientation Film but serving an important orientation purpose, was also made and used by the Army. One such, *Introduction to the Army*, was produced for new inductees to explain the processing at the reception center, the kind of life that lay ahead in the training camp, and the adjustments that had to be made to military life. Another such film is *This is the Infantry*, shown to all men newly assigned to this branch of the service. It was intended to build in the slogging foot soldier a feeling of pride in the infantry and an understanding of the important and tough job which that service performs in modern war. Films on the Armored Force, the Chemical Warfare Service, and other components of the Army were similar in nature and intent. They were used to orient the soldier in the service to which he was assigned and in the importance of the rôle of that service in the total war effort.

Whether the Army's orientation films, particularly those dealing with historical background, will withstand the scrutiny of postwar perspective and emerge as accurate historical documents is a matter for time to tell. There is little doubt, however, that they were effective as contemporary propaganda which gave meaning to the war as that meaning was popularly understood during the crucial days of battle. Neither can there be doubt that the use of films for general and specific orientation with reference to component groups

and their relation to the total scene is a significant development in educational method which has strong implications for postwar education. Also important is the fact that motion pictures were used as a basic medium for developing the broad and specific meanings and motivations of the skills, disciplines, sacrifices, and heroic actions required in military service. Now that the war is over, there is even greater need for clarity of national and international purpose, for broad social understandings, and for individual sacrifice for the higher good. There is also greater need for films which will effectively contribute to these ends.

CONDUCT AND SELF-CONTROL

The second major purpose for which motion pictures were made and used by both the Army and the Navy was the development of understandings, habits, and attitudes relating to (1) customs and courtesies of the service, (2) health and hygiene, and (3) emotions, conduct, and self-control.

Of these three, the third will be discussed most fully, since it is in this area of education that the Army turned the motion picture to a use never before so deliberately and systematically attempted, yet so apparently important and natural to motion pictures.

In his first few days in the Army, the new inductee was shown the training films *Military Courtesy and Customs of the Service*, *Personal Hygiene*, and *Sex Hygiene*. The first of these deals with how, whom, and when to salute, when and where to stand at attention or at ease, when to wear the cap on and off the head, how to address officers, how to recognize the grade of commissioned and non-commissioned officers, and other matters of Army custom and courtesy. These are largely the good manners of military life that have developed over many years and that, like a great many things in the Army, have been standardized and made a matter of routine. Behind each prescribed form of military behavior stands a good and basic reason. The film demonstrates both the routine and the reason.

Personal Hygiene, as can be imagined from the title, deals with

washing and bathing, ventilation and bed arrangement in barracks, how to avoid blisters, and how to open them in case they arise, etc. The WAC film, *Strictly Personal* expanded this theme to include hair grooming, makeup, and other matters of purely feminine concern. *Care of the Teeth* does an extraordinarily good job of showing how to brush the teeth and what happens when tooth and mouth hygiene is neglected.

Sex Hygiene deals with venereal disease and its gruesome results. It is not a pleasant picture to look at. It was, however, rated as a powerful factor in maintaining the relatively low venereal disease rate in the Army during the war.

There were other films which dealt effectively and comprehensively with problems of health and habits of health precautions. *Malaria,* for instance, taught the men to sleep under mosquito netting in malaria-infested territory, to use mosquito repellant, and to keep hands and neck covered during the day, to avoid bathing in cool and shady spots where the malaria mosquito lingers, and to take atabrine tablets daily. Films such as this had previously been made and used in civilian education. Many comparable films were also produced and used by the Navy, the Air Forces, and by the British, Canadian, and Australian Armies.

In making and using films on individual conduct and self-control the Army was the first to deliberately and seriously harness the power of the motion picture to affect attitudes and to influence emotions and actions. This power was used systematically to fix and reinforce patterns of individual conduct in conformance with the American military code of behavior. Outstanding among films produced for this purpose is the *Fighting Men Series.* They have no counterpart in civilian education or in any films developed by other government film production agencies. This series has to do with the fundamental lessons of individual conduct that every soldier must learn and apply if he is to discharge his duties to himself and to his teammates.

As someone has observed, Duty is the most dreary of all subjects. Films dealing with duty can easily fall into a dull pattern. No such mistake was made in the *Fighting Men Series* or in other

films on such subjects as resistance to pressures and temptations to "talk," resistance to the temptations of an evening of intimacy with a "pickup," resistance to the temptation to slip away unnoticed from line of duty.

The *Fighting Men Series* taught their lessons in a rough, chummy, vernacular sort of way—not in the impersonal didacticism of the more conventional educational or training film. The lesson of each film was dramatized in an incident that any member of the audience could have played a part in, and the "moral" of the story was pointed up and summarized in the easy and natural dialogue of the actors. These training films utilized the dramatic techniques of the entertainment film, yet they taught their lessons without, on the whole, losing the lesson in its telling. The *Fighting Men Series* are the World War II training film versions of *What Price Glory?* They were among the most widely used of all War Department films.

In this series, *Baptism of Fire* was made to condition men to the noise, confusion, fear, and danger of battle, and to teach them not to be afraid of fear. *Kill or Be Killed* was intended to steel men to the job of war against which their values and emotions have been previously conditioned. In civilian life, American GI's had been educated to a belief in fair play, in giving the other fellow a break, in live and let live. In war against Nazis and Japs, neither of whom accepted these basic moral principles, Americans had to kill the enemy or be killed by him. Fair play, compassion, and mercy were sneered at by the enemy as evidence of the moral decadence of American democracy.

Crack That Tank taught the soldier not to fear the armored monsters of mechanized warfare, but to have confidence in his training and ability not only to survive their attack, but to put them out of action. Other films in the series taught the soldier to keep his rifle clean at all times, to curb his curiosity in the face of ever-present boobytraps, to disregard "latrine rumors" on enemy movements, secret weapons, and battle reverses. They taught men that the real heroes of war are not those who take on the enemy single-handed, but the men who faithfully do their jobs no matter

how humble. They taught soldiers to curb their ambitions for personal glory; that fear in battle is natural, though it must be held in check if the individual is to survive; that battle conditions cause confusion; that wild, unfounded rumors add to confusion and chaos; that confidence in and proper use of weapons and the application of lessons learned in training make the soldier master over the enemy; that sticking to the job assigned in the face of its apparent unimportance is the real test of a good soldier.

While applied by the Army to strictly military circumstances, the general principles back of these films are fundamental to good living for all time and in all places. Films that teach basic truths build values and the self-control and strong character necessary to live by these values. There are lessons of good living that can and need to be taught in films made for postwar education—lessons in honesty, fair-dealing, unflinching devotion to the general welfare rather than to personal glory and profit at other people's expense, faithfulness in big and little things, kindness in every social relationship, intellectual and social humility rather than pride, greed, and envy.

The practicability and popularity of films which teach basic moral values and the understanding and direction of emotions and conduct in terms of these values have been demonstrated in the Army's film program. Their production and use by schools, colleges, churches, and other social organizations appears as essential in postwar education for peace. Some of the techniques of Army films remain to be adapted to civilian usage, but the basic techniques and the basic necessity and effectiveness of such films have been amply demonstrated by the Army.

Apart from the *Fighting Men Series* a number of other films were produced by the Army dealing with other basic patterns of individual conduct. *AWOL and Desertion* is a dramatized treatment of the problem of absence without leave, why it is wrong, what may happen to others because of this absence, the consequences to individuals convicted of absence without leave, and its more serious logical extension—desertion. *Pick-Up* is the tale of the indiscretion of a young soldier after his chance meeting in a rail-

road station with an apparently clean-cut, properly brought-up young woman of his own age. During his following convalescent period in a station hospital, when he otherwise would have been home on furlough with his family, the medical officer explains and warns against diseases that lie in the wake of similar episodes.

The film that many Army people and professional educators in the Army regard as probably the most powerful single educational film to come out of the war is the Army Air Forces' *Resisting Enemy Interrogation.* This film dramatizes the meaning in one situation of the two simple words, *dont talk*! Its treatment is not just dramatic: it borders on the melodramatic. It has all the elements of a mystery thriller. It also has all the elements of a superbly effective teaching film. A motion picture similar in power and teaching effectiveness is the Navy's *The Story of DE733,* which dealt with the consequences of social diseases to a crew when its full strength against enemy attack was required.

Resisting Enemy Interrogation is the story of the systematic and clever interrogation by German intelligence officers of five captured American flyers shot down over enemy territory, and of the slow and painstaking piecing together of vital information on a forthcoming American air attack gleaned from bits and scraps of information supplied wholly unintentionally by each of the five flyers. The German officers, in contrast to the typical Hollywood feature film, were neither stupid nor inept. They appeared at least the equal in intelligence and competence to the Americans they were interrogating. The American characters, too, were cast with care, although each represented a weakness which, while harmless in ordinary circumstances, proved tragic against a clever, determined enemy:

1. The poised, self-possessed officer schooled in the requirements of military security and the terms of the Geneva convention, completely resolved to supply only three approved items of information: his name, his rank, his serial number.

2. The breezy fellow-officer, sure of himself, inclined to boasting, supremely confident that *he* will never give away any vital information.

3. The clever non-com, overly wise to what the enemy will try to do, sure that he can outsmart and mislead enemy intelligence into a blind alley.

4. The homesick boy easily betrayed into loquaciousness by small acts of apparent kindness and feminine charm.

5. The wounded boy, naïve, and scared, easily thrown off guard by the feigned propriety of his captors.

For seventy-two minutes there unfolds on the screen the story of the failure of each of these men to realize and practice the full and unequivocal significance of the two words, *don't talk!* As the picture ends in frightful tragedy of the later mission of fellow flyers, the lesson is summarized by an officer at the American base, looking directly into the camera. The film leaves each members of the audience with a deep sense of obligation, akin to a sense of his own possible guilt. Again, in contrast to the Hollywood feature film, the story ends in tragic loss of American life and an overwhelming sense of individual responsibility for such a failure. It is difficult to conceive of any comparable seventy-two minute lesson, taught either in the armed forces or in the schools, that can approximate *Resisting Enemy Interrogation* for penetrating effectiveness.

INFORMATION

American soldiers were among the best informed in the world on developments in war materiel and in problems and progress of their comrades on various world fronts. Motion pictures played a big part in disseminating this information, and in this way they contributed to the preservation of a high morale and a solidarity of effort in widely scattered areas of the Atlantic and the Pacific.

Four film media were used for the dissemination of information to staff officers, to troops (and to civilians):

1. *Film Bulletins*
2. *Combat Bulletins and Staff Film Reports*
3. *Campaign Reports*
4. *The Army-Navy Screen Magazine.*

Film Bulletins reported development in new weapons, armored vehicles, maneuvers, campaigns, teamwork among services, services performed by various Army components, etc. The following titles, selected at random, give a cross-section of the kinds of subjects covered in these films: *The 75mm, New Gun Half-Track Carrier, Barrage Balloons, Hasty Tank Obstacles, Parachutists on Skis, Battlefield Sounds, Loading of Cargo Planes, Highway to Alaska, Training Under Fire, Invasion in the Making, The Army Railroad, Use of War Dogs, The Correct Use of the Official Telephone in the U. S. Army Administration, Fire Power vs. Japanese Pillboxes, Engineer Power Shovel and Attachments, German Wood and Concrete Mines, Medical Service in the Invasion of Normandy, The Battle of Buna, Combat Firing with Hand Guns,* etc.

These films were the Army's "quickies," produced quickly and at low cost, and presenting their subjects in a newsy, interesting fashion. Many of them were extremely popular and were frequently shown as part of the training and information programs; others were made for restricted audiences and carried messages of a very confidential nature on new weapons and new procedures, reports of tests of this equipment, and directions for its use a short time later in crucial operations.

The Army was quick to grasp the importance of live photographic reports of actual events, actual tests, actual combat conditions and operations. Provision was made for regular coverage and regular issue of film reports in the form of *Combat Bulletins, Staff Film Reports,* and *Campaign Reports.* These latter three types of film reports were, in fact, an expansion of the function of the *Film Bulletins,* with the exception that they covered operations largely from a time rather than a subject point of view and they were issued on a regular weekly basis. The Navy, too, employed action films for combat bulletins and staff reports.

Combat Bulletins and *Staff Film Reports* were inaugurated by the Army in 1944. The former were intended for general showing to all troops, both at home and abroad, and the latter for showing to staff officers in the United States and in overseas theaters and departments. Special editions of *Combat Bulletins* were made for

distribution to general hospitals in order to keep combat casualties informed of the progress of their former units. Typical of the kinds of photographic coverage included in *Combat Bulletins* are the following: *Combat Bulletin No. 22.* Yanks in Germany. Third and Seventh Armies Meet. British Take Antwerp. Buzz Bombs Halted. Airborne Army Takeoff. *Combat Bulletin No. 26.* Capture of Tengyueh, Burma Road Barrier, Fifth Army on Road to Bologna. Seized Film on Ploesti Oil Field. Artificial Harbor in Normandy. Activities in ETO—Cross-Canal Flame Thrower. Railroads Bring Tanks to Front. U-Boat at Brest. Battle of Aachen. AMG in Germany. RAF Bombs Germany, etc.

These films were widely exhibited. Overseas the *Combat Bulletins* were shown as part of the evening entertainment film program. They constituted the Army newsreel of the war. At home they were widely shown in training camps and other Army installations not only to troops but to civilian employees of these installations. They were reported as effective both in educating fresh troops to conditions of combat, and in sustaining morale among civilian workers by demonstrating the end-product of their efforts in the actual prosecution of the war. *Staff Film Reports* served the important purpose for staff officers of demonstrating, perhaps better than any other method, the global nature of the war and the problems and importance of the other fronts.

Campaign Reports were reviews of a single campaign. *Liberation of Rome* is typical. While produced primarily for civilian audiences in public theaters of this country, they also served a valuable purpose in providing military information for staff officers and troops. They showed why and how a campaign was fought, its tactical plan, the terrain covered, the deployment of the various units, and scenes of actual assault and combat. It is possible that these film reports will prove of value as historical documents in years to come.

The most widely known and the best of the *Campaign Reports* is the feature-length *The True Glory,* the story of the campaign in Europe, produced entirely from combat footage. It was made jointly by the British and the American photographic facilities,

and was widely shown in public theaters in America and Britain.

No picture coming out of World War II so thoroughly demonstrates the magnificent talent and real worth of the photographic coverage of the war, with the terrible realism of the combat cameramen; the earthy simplicity of the film writers who went to the men who fought the war for the story they wrote; and the superb direction and editing by officers and enlisted men, who followed their trade in the theaters of war. The greatest documentary films on the war to reach the screen were made by men who seldom, if ever, used the term "documentary film," or made a speech, wrote a book, or developed a cult in the "documentary film movement." It will be interesting to observe the effect of such films on future motion pictures for both the theater and the schools. Some of the people who photographed the war and most of them who produced the finished films for public and troop showings came from Hollywood. Most of them will return to Hollywood, or to some other center of motion picture production. They bring back to the theatrical film industry a new and vivid appreciation of the motion picture as a form of social reporting. They also carry back with them the experience of war and its mud and muck and blood, and sacrifice. All this may or may not affect the sort of films they will make after their return to civilian life.

The third kind of informational film, produced entirely for troop showings, was the *Army-Navy Screen Magazine.* In the official language of the War Department the *Army-Navy Screen Magazine* was "A twenty-minute flexible newsreel-type series of films produced fortnightly and designed to meet specific morale needs. This series is broad in scope for the purpose of enlarging the soldiers' perspective of the war and its objectives are to present the progress of the war on all fronts; promote and maintain better relations with our allies; report on the home front; aid training by presenting specific lessons through the use of animated cartoons; present a thorough understanding of the character of our enemy, their equipment, etc."

The *Army-Navy Screen Magazine* was shown as a regular part of the entertainment film program, both at home and overseas. As

can be seen from the stated purposes, there is overlapping of coverage and intent between this and other informational films issued by the Army. Its original purposes were superseded in part by *Combat Bulletins*. Content unique to the *Army-Navy Screen Magazine* included "letter from home" material for the men overseas, and the cartoon character *Snafu*, prototype of common GI gripes and who invariably flaunted the rules of security, malaria control, and other common restraints. From time to time, other material of general entertainment and morale value was also included.

The Army, and the Navy as well, made information films for factory workers as part of the industrial incentive programs. These films were "angled" to establish the relationship between production on the home front and success on the battle front. The Army's industrial incentive film program was widely "ballyhooed" in a strong atmosphere of high-pressure movie promotion and promoters. At best, it operated under trying conditions. Factories were not equipped for movie-showing to wartime workers. Time-off to see these movies was time-off from the very production the movies were intended to stimulate. On the whole, war workers viewed with a jaundiced eye the efforts, particularly the too obvious efforts, of professional morale-builders to increase industrial production. Nevertheless, a large number of these industrial incentive films was produced, their quality was generally high, and the audience reportedly numbered millions. No attempt was made to determine the value of this film program.

It is clear that the production and use of information films in the war effort was wide and varied, and not entirely free of duplication in purposes, activities, and efforts. Nevertheless, the use of films for the dissemination of current information to soldiers, to war workers, and to the public was considered an important part of the general morale program.

Few films serving a comparable function have been made for or used in schools and colleges. Recently the *March of Time* has released some of the subjects it produced for theatrical showing and has issued them in special "forum editions" for school use. However, this is a small and limited, although important, begin-

ning in the broad field of information films that are vital in the high school and college curriculum, and in programs of adult educational organizations.

Progress in science, aviation, exploration, community development, public health, housing, sports, new industrial materials and processes, job opportunities, educational developments, problems and services of management, labor, and public service groups, regional developments and problems, improved racial relations and advances in opportunities of minority groups, improvements in civic government—these and other subjects are important items of general information. Reports of progress, whether that progress be in war or in peace, have a stimulating and morale-building effect on the audience. They help develop a sense of cohesion, a community of interest, and, hence, a community of effort. A well-informed public, interested in the general welfare and in improved social processes and progress, is essential to the American way of life and to the American form of government. The Army pioneered in the broad and extensive use of films for this important educational purpose, a purpose equally proper to education, both informal and formal. Whether informational films, or "fact films" as they are more commonly known outside of military circles, belong on the theatrical motion picture screen is a subject nobly argued pro by a few enlightened motion picture critics and film producers, and con by many theater owners and managers.

INSTRUCTION

The fourth purpose for which films were used by the Army and by other military services and government agencies was the familiar one of instruction. As a matter of fact, the majority of Army films dealt with instruction, either in some technical subject such as basic electricity, principles of frequency modulation, weather theory, etc., or in some technical skill, such as rifle marksmanship, carpentry, operation of field and coast artillery guns, installation and maintenance of teletypewriter sets, etc. The range of subjects covered in instructional films produced by the Army, the Air

Forces, the Navy, and the U. S. Office of Education is staggering, judged by prewar standards.

The fact that motion pictures contribute to learning facts, principles, and skills, and that students learn and remember well from films has long been demonstrated in educational research. It should, therefore, be no surprise that films were used by the Army, the Navy, the U. S. Office of Education, and other war-training agencies for training purposes, and that, in comparison with other teaching materials and procedures, *they resulted in better learning* of facts, principles, and skills.

Exaggerated claims have been made as to the amount of time saved in the training program through the use of films. However, it is quite impossible to estimate this factor with accuracy. The time devoted to any given Army training program was set by higher headquarters in terms of maximum limits. The over-all strategy of the war, the commitments of troops of various military categories to various theaters of operation, and the lessons learned on the battlefield and along supply and maintenance lines were important factors in determining how much time could be devoted to any given training program. For instance, when demand for junior officers was high, the training program of Officer Candidate Schools was set at three months. When this demand eased off, the OCS course was lengthened to four months. When Germany was defeated, and the demand was further reduced, the OCS course was lengthened to six months. The fact that films were available for OCS training and that they were used in this program was in no way responsible for the three-month, the four-month, or the six-month training period. *What films actually did was to improve the quality of the training provided in the allotted time.*

As experience mounted in their production and use, the quality of training films improved greatly. Despite the idyllic emphasis that a few professional educators have placed on "natural motivation" in the Army training program (the soldier had to learn his lessons or run a greater risk of being killed or badly injured), the sober truth is that it was difficult to convince a soldier that his *life*

depended in the *future* on his diligence in learning the *principles* of the *storage battery now*. There were many more films on subjects like the principles of the storage battery than on the field expedients that actually kept soldiers from being killed or injured in combat areas.

Anyone who spent time in an Army training camp knows that soldiers are not the eager-beaver learners they are sometimes made out to be in the professional educational journals. Learning from films was complicated by several hard facts. Training camps were concentrated in the southern states and films generally were shown in one-storey buildings. Under rugged conditions of camp construction, ventilation was a serious problem when the windows were darkened so that the picture could be seen on the screen. Moreover, the men viewing the film might have been up half the previous night on a problem dealing with motor convoy or such like. These conditions were far from ideal; they tended to overbalance whatever "natural motivation" for learning from the films might have existed under more desirable conditions. Under impetus of "visual education coordinators" and training commands many of these conditions were improved, but, at best, the war-training program offered few educational "luxuries."

In one respect, however, the difficult conditions of film use in the Army training program worked for the best. The necessity it imposed on the production of films that were interesting as well as accurate, resulted in the production of films with increased teaching powers.

3

EXTENT OF FILM USE

As IMPORTANT TO SCHOOLS and colleges as the revamping of ideas on what films can be used for in education is a corresponding revamping of ideas on the extent to which films can be used. With the talent, the facilities, and the funds available to the armed forces for film programs during the war years, it is not surprising that there were marked developments in the kind and quality of films produced. It would have been surprising if there had been no such developments. The real test is the extent to which the films were used.

If the following published statement is true, however, the implications for civilian education of the extensive use of films in the war-training program can be sloughed off as of momentary interest only, and the training film program can be dismissed as *ersatz* education:

"It is the inexperience of the instructors of the war-training program, coupled with the simplicity of objectives, which has made so effective what may be quite literally called 'canned instruction': sound films and film strips in cans, the latter accompanied by synchronized phonograph records. Anyone who can operate the very simple projection apparatus can by the use of these, give a complete unit of instruction prepared by experts. It would appear that such 'canned instruction,' like canned foods, is appropriate only when 'fresh instruction' by a competent instructor is not available."

Reassuring as this conclusion may appear to the educator who passes films by, it is not borne out by the facts. Experimenters whose findings were reported in an earlier chapter frequently observed that it was the "competent" instructor who made the *most* as well as the *best* use of films, and it was the incompetent instructor who made the *least* and the *poorest* use of films, as he did of other available teaching materials. A measure of competence of an instructor is not that he disregards teaching materials "prepared by experts," but that he avails himself of these materials and puts them to good use.

Were it true that films were merely "canned instruction" appropriate only when "fresh instruction" by a competent instructor is not available, it follows that the use of films would decline as competent instructors became available. Without inquiring too deeply into the question of competence of Army instructors, it is reasonable to assume that there was an increase in competence as the training programs progressed, if for no other reason than that instructors became more experienced in the process of training thousands and thousands of men. On the basis of this assumption, it follows from the foregoing quotation that the use of films should have diminished as the training program progressed. That is exactly what did not happen. On the contrary, the over-all use of films increased. The record on film use in the war-training program does not appear to support the theory that there is an inverse ratio between the competence of an instructional staff and the frequency of educational film use.

Several important lessons of the war-training program will be lost unless serious consideration is given to the extent of film use and to some of the factors which influenced this use. For one thing, it is important to know the extent of film use by the armed forces. For another thing, it is important to know the kinds of films most frequently used. Again, it is important to know the extent to which film strips were used and what factors influenced this use. Finally, it would be begging the question if the relationship between the supply of projectors and the frequency of film use were not considered.

Experiences in the war-training program, as they can be summarized from data compiled by the Signal Corps' Army Pictorial Service, have direct application to the rôle and use of films and film strips in civilian education. They also have important bearing on the economics of this future development, on production budgets, on production programs, and on the avoidance of costly mistakes.

EXTENT OF FILM USE

Data on the Army's film use from July 1, 1943, to June 30, 1945, are summarized in Table V. These do not include the number of showings of entertainment films, of the Army-Navy Screen Magazine which was shown in post theaters and overseas as part of the entertainment film program; of the GI Movie Weekly, a semi-educational recreational combination of theatrical short subjects and other films available for free distribution to troops; foreign-language versions of training films produced for Allied armies; technical bulletins reporting technical experiments and developments, or other films produced for restricted use with restricted audiences. Neither does it include the number of showings of industrial incentive films (War Films) to workers in civilian factories. It includes only those films which were shown to military personnel and civilian employes of military installations as part of the training and morale programs of the *Army Ground Forces* and *Army Service Forces only* in the United States.

From this table it is seen that in the two years between July 1, 1943, and June 30, 1945, there were over 4,200,000 separate *showings* of films to soldiers and to civilian employes of the Army in the *United States alone*. Assuming that the use of films by the Army Air Forces was proportionate to that of the other two Forces, it may be estimated that there were an additional 2,000,000 showings by the Army Air Forces during these same two years. Another 2,000,000 may be conservatively estimated for the Navy, the Marine Corps, and the Coast Guard, making an estimated total of over 8,000,000 individual film showings during the past two years by the armed services, exclusive of all overseas data.

Judged by prewar educational film usage, the use of films by the armed forces reached unprecedented—and comparatively staggering—proportions.

It is hard to comprehend the meaning of these gross figures. One method is to compare the monthly attendance for Army films during the last year of the war with that of the entertainment motion picture before the war. It has been estimated that the prewar monthly attendance at commercial movies was 80 millions weekly, or 320 millions monthly. The monthly attendance for Army films between July 1, 1944, and June 30, 1945, may be conservatively estimated at over 21 millions. This latter figure is derived as follows. The average audience for a 16mm Army film showing was 120. Multiplying the total number of showings for the last year, 2,130,629 by ten (120 average attendance divided by twelve months), the average monthly attendance at Army films is slightly higher than 21,300,000. The prewar monthly attendance average at commercial movies was thus about fifteen times that of the Army films during the last year of the war. On the other hand, during this period the civilian population in this country was approximately 130 millions while the military population in training in this country in 1944-1945 was well below 4 millions. In other words, while the attendance at commercial movies was fifteen times that at Army movies, the population from which the commercial movies drew their audience was thirty times that of the military population. The conclusion is that, in proportion to the population, Army attendance at non-entertainment films in this country during the last year of the war was twice that of civilian attendance at commercial entertainment movies before the war. *In terms of its audience potential, the Army did twice the film business that Hollywood did before the war.*

It should not be concluded that the postwar market for non-theatrical motion pictures will be twice as great as the entertainment market. The data on Army film use, however, indicate the potential field of the non-theatrical 16mm motion picture, and particularly they indicate (1) the new and important field of 16mm motion pictures in public education, information, and training, and

TABLE V

ARMY FILM SHOWINGS IN CONTINENTAL U. S.
JULY 1, 1943—JUNE 30, 1945

TYPE[1] OF FILMS	NUMBER OF SHOWINGS						GRAND TOTAL
	July 1, 1943—June 30, 1944			July 1, 1944—June 30, 1945			
	16mm	35mm	Total	16mm	35mm	Total	
Training Films	1,725,908	100,784	1,826,692	1,403,644	45,661	1,449,305	3,275,997
Film Bulletins	145,525	4,805	150,330	120,838	2,417	123,255	273,585
Combat[2] Bulletins	3,020	39	3,059	195,376	1,748	197,124	200,183
Orientation Films	38,415	13,107	51,522	93,383	23,414	116,797	168,319
War Films	20,095	1,204	21,299	83,624	9,911	93,535	114,834
Misc. Films	32,388	1,337	33,725	105,500	45,103	150,603	184,328
Total Showings	1,965,351	121,276	2,086,627	2,002,365	128,254	2,130,619	4,217,246

[1] These classifications are the official Army classifications. They differ slightly from the classifications used in Chapter II.

[2] Only one Combat Bulletin distributed prior to July 1, 1944.

(2) the magnitude of the job that lies ahead for schools, colleges, churches, industry and labor groups, and public and private associations *to catch up with the progress of the armed forces* in the use of educational motion pictures.

Among the data presented in Table V are several other facts of importance in the application of the experience of the Army program to postwar educational film uses.

First, of the 4,200,000-odd film showings during the last two years of the war, there were more than 3,200,000 training film showings. In other words, about three out of every four films shown were training films, dealing with technical information or skills, with conduct, and with adjustment to military life. Orientation and information films constituted about one-fourth of the total motion picture diet. (Films discussed in Chapter II as dealing with character and conduct are included in the official Army classification of "Training Films.")

Second, during the last year of the war, there was a decrease in the training film and film bulletin showings and an increase in the showings of orientation films, films dealing with progress of the war and the war effort, and miscellaneous films. The rate of decrease in the use of training films was less, however, than the rate of decrease in the number of troops in training. It cannot thus be concluded that training films were used less intensively in the last year of the war.

The increase in the production and use of *information* and *orientation* films is important to schools and colleges, and to all groups and associations engaged in educational and welfare activities. It is conceivable that some of the tension existing in our country, and among countries of the world, could be dissipated through the use of motion pictures which *accurately* and specifically portray the objectives, progress, and development that each group seeks to achieve, the effect of this achievement on other groups and on the general welfare, and the steps by which achievement is effected.

Third, the use of 16mm films was more than twelve times as great as that of 35mm films. The Army threw off the entertain-

ment concept of showing films to large and heterogeneous audiences and replaced it with the educational concept—using films with small and homogeneous groups. Instead of moving troops en masse to a large theater, irrespective of the types of these troops and of the nature and stage of their training, the Army brought its films at the appropriate time to the training areas and the Army classrooms where the men were undergoing individual or unit training. Theatrical production techniques were utilized increasingly in order to make the films interesting and to drive their lessons home, but theatrical exhibition techniques gave way to small group showings in order to fit the appropriate films into the training and orientation programs and to provide for the application of effective educational procedures in the use of these films.

VARIATION IN FILM USE

While there was enormous use of films, particularly training films, not all films produced by the Army were widely screened. On the contrary, less than 50 percent of the training films accounted for more than 90 percent of the showings. This means that half the films produced accounted for only a relatively small percentage of total training film use. This fact is not entirely unexpected in view of the changing training requirements and the constant development of new weapons which made both the old weapons and the films on those weapons obsolete. Furthermore, many of the films produced were intended for small and specialized audiences. But there were instances of over-production of films, and of under-consumption as well.

In order of frequency of use, the most popular of the Army's training films were those dealing with basic military subjects: map reading, military security, malaria control, the *Articles of War*, sex and personal hygiene, enemy booby traps, camouflage, first-aid, the *Fighting Men Series*, the *Why We Fight Series*, defense against chemical warfare, vehicle driving and maintenance, rifle marksmanship and infantry drill, and related subjects. Of the 2000-odd films that were produced for troop showing only eighty-three

were shown more than 10,000 times during the two years on which accurate data are available. These films dealt with the basic subjects every soldier was taught.

With few exceptions, the most frequently used of the Army's films had three characteristics: (1) They covered basic subjects and basic patterns of behavior. (2) They emphasized both the *what* and the *why* of the subject. (3) They were dramatic and narrative, rather than didactic and expository.

In other words, these films covered basic subjects, and they dramatized the subject they taught rather than *simply* intellectualizing it. In these respects the Army's most frequently used films differed markedly from the pattern of prewar educational films.

Technical films—i.e., those dealing with specialized subjects and skills, such as electricity and telephone and radio operation of the Signal Corps, food and clothing of the Quartermaster Corps, tanks of the Armored Force, guns of the Ordnance Department, etc.—were less frequently used. This fact, in itself, is to be expected, since such films were technical in content and produced for use in specialized training of particular branches. However, as previously indicated, there was considerable variation in the extent of use of specialized films by the services for which such films were produced.

USE OF FILM STRIPS

While the use of motion pictures in the war-training program was amazing in its extent, the use of film strips was disappointing. This fact stands in seeming contradiction to the results of film strip use reported in experimental programs and research studies carried on by the Army. As pointed out in Chapter I, one of the Army's promising contributions to educational method involved the development and use of film strips, integrated with reading materials, to teach reading and elementary arithmetic to "functional illiterates."

If mere frequency of film strip use in the war-training program were the only factor to consider as a basis for postwar prediction,

the future of film strips in education and training would assume a negligible outlook. But frequency of film strip use in the war-training program cannot be accepted as a reliable criterion for prophesying about the frequency of its use in educational programs. There were in the Army training program and there are in schools and colleges today other factors which enter the scene and must be considered. But, before such consideration, it is necessary to define the term *film strip*. As used in Army training, and throughout this report, the term *film strip* describes a strip of 35mm film upon which a series of still pictures is printed in sequence and intended for individual projection. A certain amount of confusion is attached to the term *film strip* since it is often used interchangeably with *slide film*, *filmslide*, and *strip film*. Further confusion arises because film strips may be either "silent" or "sound." In the latter type, the film strip is accompanied by a recording played on a phonograph or a "playback" machine in synchronization with projection of the film strip. If these disks are to be played on an ordinary phonograph, they are recorded at 78 revolutions per minute. If they are to be played on a "playback" machine, they are recorded at 33⅓ revolutions per minute. A versatile "playback" machine has a dual-speed motor capable of operating at either 78rpm or 33⅓rpm. So much for what is meant by *film strip* and *sound film strip*, otherwise known as slide film, filmslide, and strip film, sound or silent.

In many schools and colleges and churches the supply of film strip projectors is greater than the supply of 16mm sound motion picture projectors. Because of the relative low cost of silent film strip projectors, and of silent film strips, it appears likely that the proportion of film strip projectors in schools and colleges will continue to be much greater than that of sound motion picture projectors, and that the market for film strips will be correspondingly greater. There is likely to be a greater market for a *variety* of film strips than for a variety of motion pictures *per individual projector* owned by or accessible to schools, colleges, and other educational groups because of the low cost of the individual film strip, and there are likely to be many more film strip projectors available

in schools, colleges, and other educational groups because of the low cost.

Quite apart from any comparative function or merit of film strip *vs.* motion picture, the basic economic fact of low cost will probably be a dominant factor in postwar visual education. It is impossible to disregard low cost and low upkeep in connection with problems of supply, use, and improvement of teaching materials. Financial resources of educational institutions and agencies are not inexhaustible, and there is a tendency in educational circles to move cautiously in spending money for equipment and materials of instruction.

A second factor likely to increase the use of film strips in schools and colleges is the tendency to regard film strips as cheap substitutes for glass slides. However, film strips are not, by nature, substitutes for glass slides. One of the serious faults of film strips to date (exclusive of sound film strips produced for industry training, advertising, and public relations) is that they have been conceived of as cheap versions of glass slides rather than as cheap versions of motion pictures, to which they are more closely related in structure.

There is no accurate over-all picture of film strip use in the Army or in other war-training programs of the Navy, the Air Forces, or the U. S. Office of Education. A study of the use of film strips in Army Ground Forces and Army Service Forces training was conducted during the months of September and October, 1943, by the Signal Corps' Army Pictorial Service. Accurate records were kept for these two months in 34 of the largest training camps in the United States. These records revealed that the average monthly use per subject varied from only 2 uses to approximately 150 uses in all 34 training camps combined. On the basis of this study it was estimated that the monthly total of film strip uses, including all subjects in all training camps in the country, was approximately 30,000. For the same period there were more than 150,000 motion picture uses. While there were approximately the same number of film strips and motion pictures available, there were five showings of motion pictures for every one showing of a film strip for train-

ing purposes. On the basis of available Navy statistics, the Navy ration between motion picture and film strip use appears to be closer to two-to-one than five-to-one. However, the rate of motion picture use grew rapidly, while the rate of film strip use did not. Consequently, in later stages of the training program, the comparative rate of film strip use was even lower than these data indicate.

The relatively small use of film strips in the Army training program cannot be allowed to obscure two important studies of the values of this visual device: the one reported in Chapter I in connection with the use of film strips in teaching basic reading and arithmetic to "functional illiterates," and the other, a study of the comparative values of a motion picture and a film strip in teaching map reading.

The Research Section of the Army Pictorial Service and the Research Branch of the Information and Education Division made a study of learning from a motion picture and from a corresponding film strip on map reading. The tests were carefully constructed and the groups carefully equated. The film strip used in the experiment was composed of single frames of key pictures included in the motion picture. The tests revealed little difference between the scores of those groups taught by the motion picture and those taught by the film strip. The motion picture appeared, on the basis of test results, to be slightly superior in teaching certain concepts, and the film strip to be slightly superior in teaching others. All in all, there was little difference between the two media as measured by the tests.

It is to be remembered that the motion picture *Map Reading* involved none of the dramatic techniques discussed with relation to such films as the *Fighting Men Series*. It deals in a straightforward manner with highly abstract concepts of map representation. Despite the experimental results, however, this motion picture was one of the most widely used of the Army's training films and the corresponding film strip was withdrawn as obsolete.

There was no strong preference among Army instructors for film strips as a training aid. In a survey of preferences of training personnel for training aids, 48 percent reported that they favored

graphic portfolios (large pictures bound into a portfolio, which, when unfolded, was used as an easel), while only 20 percent favored film strips. Eighteen percent expressed no preference between the two.

In general, the use of film strips was greater in Army schools than in the training provided in tactical units. These schools, like high schools and colleges, had their regular instructors who specialized in the teaching of certain subjects. Instructors were often selected from among the brightest graduates of the schools and always for personality traits and general teaching ability or experience; in other words, for their competence as teachers. It was these "competent" instructors who made the best use of film strips in the Army training program—contrary to the judgment that " 'canned instruction,' like canned foods, is appropriate only when 'fresh instruction' by a competent instructor is not available."

The question naturally arises as to why film strips were not more widely used in the war-training program since they were produced and supplied in large quantity. Insofar as the Army is concerned several reasons may be advanced:

1. There was an abundance of "training aids" on a great many of the subjects taught by the Army, graphic aids such as charts, graphic portfolios of large pictures, series of motion pictures, and series of film strips. There simply was not time to use all these aids, nor was it clear that the *abundance* of training aids, if used in their entirety, would improve the instruction in proportion to the time devoted to their multiple use. Given the choice between a motion picture and a film strip on the same subject, the average Army instructor usually picked the motion picture and let it go at that.

2. There was little relationship between the production of film strips and their rate of use. Film strips were turned out in prodigious quantities despite repeated reports of their infrequent use. The Army's answer to the infrequent use was to issue film strip projectors to individual training units. Twice as many film strip projectors as motion picture projectors were previously available to these units from conveniently established film libraries, but five

times as many motion pictures as film strips were being used by these units. Deficiencies in the film strip production and use programs were blamed on projector supply when film strip projectors were supplied in twice the quantity that motion picture projectors were supplied, and the channels of supply for film strip and motion picture projectors were identical.

3. Effective use of film strips requires careful advance preparation by the instructor and skillful use in the teaching situation. In tactical units, training personnel found it difficult to take the time and trouble to make this advance preparation for effective film strip use. The mechanics of adequate advance preparation is time-consuming, particularly if the film strip covers a technical subject and embraces more than 50 individual pictures.

4. Little attempt was made to build teaching techniques into a film strip. As a result, the film strip often was a monotonous series of from 50 to 80 pictures, each with a reasonably high concentration of detail. Since each picture carried its own caption, the audience tends to read the words and ignore the picture. The only teaching technique used in film strips to any appreciable extent was a picture quiz at the end of the showing. This was a testing rather than an interest-catching or attention-sustaining device. It is a retroactive technique, stimulating interest *at the end* of the film instead of at the beginning or while the pictures are viewed.

Only occasionally was any dramatic, narrative, or didactic structure built into a film strip to arouse and sustain interest, to pace the learning, and to provide orientation, review, and summary of either the major sections or of the film strip as a whole. It is this general absence of teaching techniques in the Army's film strips that prompted the previous statement that film strips were conceived as substitutes for glass slides, whereas it may well be that film strips would be better materials if they were regarded as inexpensive versions of motion pictures. In this latter eventuality, the structure of the film strip must be conceived in terms similar to the structure of a motion picture. This structure involves orientating and motivating introduction, major picture sequences, camera movement toward and away from the center of interest, with appro-

priate psychological pauses for review or reflection between sequences, and review, summarization, and challenge at the end. The use of a picture quiz at the conclusion of a film strip was popular among Army instructors and may prove equally popular with school and college teachers. It is here noted that these structural techniques were employed, with apparent success, in film strips produced by the War Department for *civilian training*, and they have been effectively used in sound film strips made for training in industry in the past several years. It is also noted that in some of their industrial uses, sound film strips are deliberately planned and used as cheap substitutes for motion pictures.

The 2″x2″ slide was used in teaching aircraft, motor vehicle, and naval vessel identification by the Army Air Forces, and to a limited extent to teach aircraft and armored vehicle identification by the Army Ground Forces and Service Forces. There was little use of the 2″x2″ color slide, and relatively little, although some, use of the color film strip. The 2″x2″ slide has the advantages of being inexpensive as well as flexible in the hands of any instructor. The slides can be shown in any order or in any variety of selection the instructor desires. High hope is held for the 2″x2″ color slide in postwar education, but there is no precedent in the war-training program to reinforce this hope. This fact may imply more criticism of the visual training devices of the armed forces than of the future promise of 2″x2″ color slides in education and training.

PROJECTION EQUIPMENT

The story of film use in the war-training program and its lessons for education would be incomplete without a consideration of the importance of adequate supply and maintenance of projection equipment. It is almost an elaboration of the obvious to argue that projectors must be available in sufficient quantities or motion pictures will not be widely used, no matter how brilliantly the films are planned and produced, and no matter how lavishly prints are distributed to and by film libraries. However, this was not obvious in all quarters in the early days of the Army training program, nor

has it been evidently obvious to schools, colleges, churches, industrial organizations, labor unions, community associations, libraries, and other educational groups.

Many of these educational groups subscribe in principle to the value of motion pictures and other visual materials, but are loath or lax to equip themselves with projectors. Adequate projector supply is the first essential to any program of film use—as it is the first essential to the development of a stable and self-supporting market for commercially produced educational films. With an insufficient number of projectors, there is an insufficient opportunity for film use. With an insufficient opportunity of film use, there is an insufficient demand for prints. With an insufficient demand for prints, there is an insufficient market to justify the commercial production of good motion pictures for educational purposes. A necessary first step in the development of wide and effective use of educational films is the rapid procurement of 16mm sound motion picture projectors by schools and colleges, churches and libraries, hospitals and clinics, management and labor groups, forums and granges, and other organizations engaged in educational activities.

The relationship between projector supply and film use is apparent in Chart II, which shows that the rate of film use increases as the rate of projector supply increases. At a certain point in the curve, the rate of film use rises above the rate of projector supply. After a minimum number of projectors has been supplied, the percentage of increase of film use is higher than the percentage of increase of projector supply.

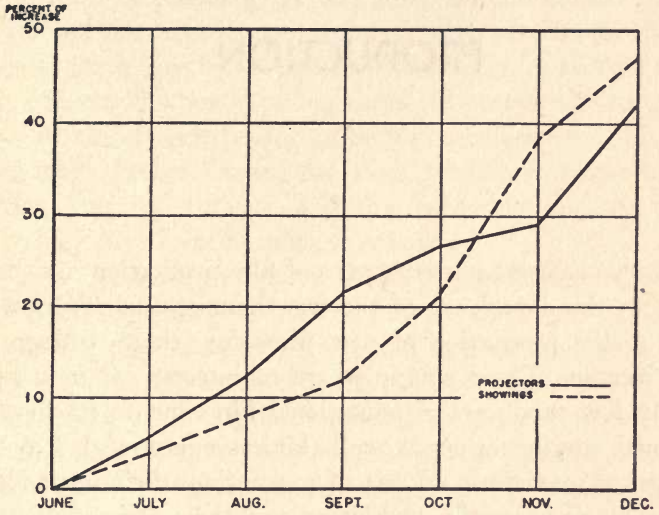
During the period covered, there was an increase of 17 percent in film subjects available for use. In other words there were 17 percent more films available for use in the available projectors. There was also a 6 percent increase in the number of uses per projector. There was an increase of 42 percent in the number of projectors, and there was a 47 percent increase in the number of film showings. The increase in the rate of projector use (6 percent) and in the supply of projector (42 percent) is approximately equal to the increased rate of film showings. Though the 17 percent in-

crease in the number of new films cannot be discounted as a factor in the increase in the rate of film uses, it appears to be relatively independent. This independence, while probably not so real as it is apparent, is conditioned by two factors: (1) there were at the

CHART II

RELATIVE INCREASE OF 16MM PROJECTORS AND SHOWINGS

(JUNE TO DECEMBER 1943)



time of this study hundreds of available Army films, (2) the study covers six months only. It is known from school and college experience that beyond a certain point in film supply there is a demand for *more new subjects*, both in areas of instruction for which films have not been produced and within areas in which films have been produced. New film supply thus conditions the rate of film use, but this conditioning is pertinent to projector supply only after the supply of projection equipment is excessive to the maximum possible use of available films—a condition quite unknown thus far in civilian education.

4

APPROACHES TO NEW FILM PRODUCTION

SEVERAL FUNDAMENTAL PRINCIPLES of film production may be isolated from the experience of the war-training film program and applied to the production of new films for school, college, and adult education. These principles are of interest not only to the relatively few producers of educational films but to teachers and educational administrators as well. Unless educational film users are aware of some basic criteria of production, their demands are likely to be economically exorbitant and their conception of the rôle of educational films is likely to be reactionary on the one hand, or quasi-educational, on the other.

Producing films for the Army, Navy, and civilian-training programs was far from simple, but compared with producing films for a postwar educational program, it was simplicity itself. The war-training program was an adult-training program and films were made for adult audiences, not for spectators varying from kindergarten to the university. The objectives of war training were specific, whereas those of education are more general, less precise. While war training was highly diversified, there was within any given area of training, a clarity of objectives and a realism in teaching procedures almost completely lacking in civilian education. Furthermore, war training did not involve the broad and

systematic development of individual mental abilities and individual personalities to highest potentials as does education, or at least not to the same degree or with the same premeditation.

The discussion of principles of educational film production in the light of experience in making films for the war-training program is undertaken with a realization that difficulties attend the application of these principles by any commercial or other organization making or planning to make films for educational use. The logical simplicity of basic principles of film production stated in "one, two, three" form is deceptive of the obstacles and the controversies one meets when applying them. However, the recognition and acceptance of these principles by film producers and film users should make future educational film production somewhat less hazardous for the producer, and the films they produce a more vital and effective force in modern education.

It seems important that postwar film production be picked up at the advanced stage that war-training film developments had reached when the war ended, rather than at that stage of development that educational films had attained at the outbreak of the war. The war was more than an interlude of educational inconvenience, including total interruption of educational film production except for industrial training; and production and use of war-training films on a vast scale was more than a phenomenon of mass training for war and war production. *There were serious advances in educational procedures during the war,* and particularly were there significant advances in the films produced for war training. The fact that war-training films were *war films* and that they were sometimes used for *propaganda* and *training* rather than for what we know as *education,* cannot be allowed to obscure the fundamental lessons of educational film production learned in their making. These lessons find immediate and urgent application in postwar educational film production.

There are at least five major principles of future production of educational films that emerged from war film production. They may be stated briefly as follows:

(1) There is need for continuous study of film utilization in

order to guide production into channels of educational demand and to avoid costly mistakes in producing films which do not either meet or satisfy this demand.

(2) If educational film production is to become economically self-supporting, it must first be concentrated in the *basic areas of education* rather than in the fields of narrow and academic specialization.

(3) The emphasis in the production of educational films must shift from subject-matter *as such* to subject-matter as it relates to the interests, abilities, and basic needs of specific audiences for whom the films are intended.

(4) Films should be conceived of and produced as *basic materials* which spearhead desirable developments in a changing curriculum, rather than as "supplementary aids" in a static curriculum.

(5) The employment of *professional motion picture production talent* is essential to the production of educational films which will successfully compete with entertainment films for the development of orderly intellectual and emotional growth and norms of civilized behavior.

These principles were learned over several years of war film production. They were not fully preconceived at the outset of the expansion of war film production. Some of the principles were not accepted in their entirety by all war-training agencies, or, if they were accepted, it was in principle only. Yet, these principles appear to be essential to an educational film production program that is to become both self-suporting and educationally significant. Taken together, these principles lead to *new kinds of films* for schools and to their better and wider use in education.

UTILIZATION AND PRODUCTION PLANNING

In the preceding chapter, it was pointed out that many motion pictures and film strips made to serve in Army training were infrequently used. Many of these relatively unused subjects had been produced before utilization statistics were compiled, and in the expectation that they would serve training requirements and

be used regularly in specific training programs. Systematic monthly collection and publication of utilization data on each of the Army's films soon established the error of these expectations. After it had been demonstrated that film utilization data were stable—i.e., that there was little variation from month to month in the relative frequency of use of individual training films—it was possible to gear production much more closely with use. Proposals for production of new films were then carefully examined in the light of the use that had been made of similar available films, and new productions were disapproved when it was easily demonstrable that the available films constituted ample supply in terms of training requirements. While systematic collection of data and compilation of reports on film utilization were undertaken by the Signal Corps' Army Pictorial Service as necessary to an efficient film distribution and an effective utilization program, they proved equally valuable in guiding film production.

The process of "production screening" is not only thoroughly applicable but thoroughly desirable in educational film production. The difficulty is that no machinery has been set up by any educational agency to gather statistics on educational film utilization on a nation-wide basis. Each educational film producer has his sales records to consult, so that he knows the volume of sales of his films, but *volume of sales and volume of use may not be the same thing.* Film libraries on occasion find themselves overstocked with prints of subjects little used in the curriculum. Some of the films that have been reasonably high on the prewar sales record prove to be low in volume of use. Furthermore, each producer has only his own sales record to consult, and while he may find from this record that certain of his films are not doing too well on the educational market, he has no way of knowing whether other films made by other producers are receiving a greater volume of use. Thus there is no real opportunity to determine the kinds of films that receive greatest educational use, or the kinds of use to which the most popular films are put in the schools.

In educational film libraries of the country, records are kept on the frequency of use of each of its films, and in many instances

these records also reveal the educational levels in which the films are used, i.e., elementary schools, junior high schools, and senior high schools. In a few film libraries, these data are tabulated annually, and film records are arranged in the order of the frequency of film use. There is, however, little interchange of such information among film libraries, and no attempt is made to gather available data from all libraries in order to compile film utilization statistics on a nation-wide basis. Yet, such a compilation is essential if educational film supply is to approach educational film demand, *as this demand is revealed by present film usage.* It constitutes one of the most elementary steps in market research for the educational film producer.

There are sufficient available data in the educational film libraries of the country to provide for a thorough-going study of existing film utilization so as to formulate intelligent and reasonably efficient plans for future production. These data can be had both on silent films, produced many years ago for schools and still widely used throughout the country, and on sound films made since the early 1930's by various commercial producers, advertisers, government agencies, and theatrical producers who have turned over their products for educational use after their theatrical run.

By correlating film production programs with film utilization, educational film producers can perform three services, valuable both to themselves and to film users:

(1) Film production and film use can be paced together, thus supplying needed films to those educational agencies which make the most use of films, and expanding production in terms of expanding rates and areas of film usage,

(2) New films can be produced to replace those which are now obsolete,

(3) More elementary films can be produced on subjects which, in their original film versions, have proven too abstract, too condensed, or too advanced for elementary or high school use.

The problem of obsolescence of educational films has never been faced squarely by film producers. Some of the films presently in school use are outmoded and should be withdrawn. Either the

material they depict no longer represents the existing situation, or the technique used in presenting the film material has since been sharply improved. Many films now shown in schools are older than the students. Of itself, this is not necessarily undesirable, but it is undesirable under any of the following three conditions:

(1) The style of dress, of transportation, or of any of the other aspects of contemporary living are out of date. Such scenes give the audience the feeling that everything else in the film is out-of-date. Such an impression was given by old Army films, and the same thing occurs with "old" educational films. Army training films which showed men wearing the World War I helmet or wrap-around leggings had an adverse effect on the soldier audience even though the tactics or weapons depicted were as applicable at the time the films were shown as they were when the films were made. Similarly, an educational film which shows women dressed in skirts and hats of 1929 and riding in shiny 1930 model automobiles, or which presents the principles of the gasoline engine as illustrated in a twenty-year-old automobile raises a barrier of suspected obsolescence in the mind of the audience to the fundamental lessons or principles set forth in the film.

(2) The subject-matter of the film is no longer accurate because of additional knowledge, different processes, or changed conditions that have occurred since the film was produced. This was the major reason why Army films were withdrawn. From the beginning of its expanded Army film program in 1940-1941, over 400 films were declared obsolete and withdrawn from circulation by June 1, 1945. It is understandable that the rapid war developments in military materials and in tactics would result in a high rate of obsolescence in training films dealing with such subject-matter. It is also understandable that obsolescence takes place in educational films, although at a slower rate.

(3) The film technique is not up to present standards. It may come as a surprise to some readers that silent films made twenty years ago are still widely used in American schools. In fairness to schools and colleges which still use them, it should be pointed out that the simple withdrawal of these films does nothing but

eliminate teaching materials which serve a useful purpose, even though more up-to-date films would serve that purpose better. Unless the material shown in these films is now wrong, or the styles are completely out-of-date, the withdrawal of silent films simply because they are silent or simply because they are ten or twenty years old is not justified. Besides, there are a few silent film classics that should not be withdrawn since they are presently irreplaceable. Furthermore, there is serious question as to the kinds of sound films that are best for primary grades and it is entirely an open question whether at least some silent films should not continue to be produced for younger children. There is a leisurely quality in the well-made silent film and a psychological effect of telling the story with the camera, that is better suited to children than the techniques of many of the sound films made especially for them. This fact has been noted by many serious and capable teachers of younger children.

A study of present utilization of older films, obsolete in technique or approaching obsolescence in doctrine or in contemporary scene, will reveal areas of film production for newer films to replace their older counterparts.

Another result of such a study would be the production of more elementary and more interesting films to serve those areas in which existing highly technical films can seldom be used. Because of their complex and abstract treatment, these films are beyond the understanding of the lower academic levels. After experimental study, the Army discovered that its film on *Map Reading* was too abstract for beginner audiences. Whereupon the Army prepared *a series* of more elementary films on the subject, retaining the old version for advanced teaching and advanced study. By examining the records of utilization of films, which because of their subject-matter should be but are not widely used, a practical and desirable approach to the problem of production can be taken by film producers, and schools can be better supplied with the kinds of films they need and will use.

FILMS IN BASIC AREAS

The second fundamental principle of new educational film production is that production must first be concentrated in the basic areas of education rather than in fields of narrow or academic specialization. This principle involves two subordinate points: (1) films must be made in the basic subjects, common to the curriculum of all schools; and (2) within these basic subjects films must be produced for those educational levels where the school population is most highly concentrated. In the elementary schools these two criteria of production converge, since there is a concentration of population and a common core to the curriculum; but in the senior high school and college there is both a progressive decrease in school population and a differentiation of subject-matter as the curriculum grows more specialized and as elective subjects become open to the students.

If any one thing is clear from the Army's film program it is the fact that a relatively small percentage of the films accounted for a large percentage of film showings. Conversely, a large percentage of the films accounted for only a small percentage of the showings. In the postwar period, when the nation is no longer struggling to preserve its sovereign existence, responsibility for educational film production will, in all probability, return to private enterprise, and private enterprise cannot succeed in developing the kinds and quantities of films appropriate to peacetime education if it is to expend its greatest productive energies on the least absorbent market.

The market for educational films depends ultimately on the size of the audience to be reached. The potential market decreases in proportion to the decrease of school population on various educational levels and in proportion to the increase in specialization of subject-matter on these levels. Fortunately for producers of educational materials, the tendency away from too much specialization in junior and senior high schools and colleges has become pronounced, and there is a strong movement to increase the em-

phasis on general education both in high school and in college. This means, for the film producer, that even though there is a smaller population (potential market) in secondary schools and colleges there will be an increasing common core of subjects taught to all students enrolled, and, therefore, a more stable market for films dealing with these core subjects. This tendency away from specialization toward general education is in its incipient stages, but it is a strong movement with strong sanction in highest educational circles. The recently published Harvard Report on *General Education in a Free Society* has invited unusual public and professional attention to the need for "a concern for certain goals of knowledge and outlook and an insistence that these goals be sought after by many means as intently as are those of specialism."

As obvious as it appears in theory that educational film producers should concentrate their initial efforts in areas of education common to a large proportion of the school population, it has not been obvious in practice. Prewar educational film production was initially concentrated on specialized areas of the curriculum on the college and high school levels rather than in the basic areas of elementary and secondary schools. *Film dealing with arithmetic, elementary science, elementary art and music, social etiquette, guidance and character training, nutrition and health, community organization and services, language arts,* and other common essentials of the elementary and secondary level have been largely ignored in prewar educational production, while the physical sciences, and, to a limited extent, the biological sciences have been widely explored in films produced for college use and for college preparatory courses in the high school curriculum. Such films as have been made have stressed the more technical rather than the non-technical aspects that contribute to basic intellectual and social needs of a wider and less academically minded segment of the educational population.

The films most frequently used in the Army training program covered the areas of basic training for all soldiers, independent of their later specialization. They dealt, thus, with the basic subjects of military orientation, conduct, understandings, and skills that

were taught during the early stages of military training, and retaught throughout the entire period of training and active duty. The areas of basic military training correspond in structure to the basic areas of the elementary school to the core areas of general and vocational education in the junior and senior high schools.

Because of the high cost of good film production and the limited cash market for these films, it is probable that high school and college instructors may have to continue to look toward a wide variety of sources for their films in addition to educational film producers, particularly for films of an informational and orientational nature. Great industries are likely to expand their production of films on industrial and scientific trends and developments as orientation and information films for both their employees and the general public. National labor organizations may make films on labor organization and activities, improved health and medical facilities, better working conditions, and other labor goals for the orientation and information of their members and the general public.

Theatrical producers of films of a popular educational nature, such as *The March of Time*, are expanding the release to educational agencies of films produced originally for the theater. This enlarges a source of films dealing with social problems of both national and international importance. National health associations, insurance companies, pharmaceutical houses, etc., may expand their production of films on disease and health, diet, preventive medicine, home nursing, sanitation, etc., for use in general public education. Theatrical producers of short subjects dealing with history, invention, science, geography, customs, other lands and other people, biography, sports, music, and other subjects of general interest, are likely to continue to release their films for school and college use.

By intelligent planning for educational release, such films can be made to contain accurate and important informational as well as a theatrical entertainment value—and thus serve better for the box office, for school, college, and adult education use. Army experience clearly indicates that short informational films dealing with

subjects of general public interest have wide popularity with a general adult audience. The conception of the theatrical short film as an *accurate* informational subject is one of the lessons that theatrical film producers can learn from the war. Informational short subjects were popular both among troops in the field and in the reconditioning program for wounded veterans.

If such films are to find legitimate use in educational institutions as curriculum materials, their sponsors must be motivated by a genuine sense of obligation to the public welfare, rather than of undue profit at other people's expense, either actual or potential. The presentation of subject-matter must be free of competitive selling and sales pressure. Any pleading for a special cause must be clearly identified as such a plea, and the existence of another point of view held by other groups or other people must be honestly shown. If these films are to be used in education, they must be produced so as to meet rigorous educational standards of the schools, not simply the commercial standards of the advertising department.

Enumeration of the foregoing sources of films dealing with basic subjects does not imply that educational film producers are not likely to make films for high school, college, or adult education use on the kinds of subjects discussed. Instead, it is pointed out that the production of good films on these subjects is expensive, and that without subsidy of some sort, production of such films was not self-supporting in the prewar educational market. On the other hand, schools and colleges cannot look upon privately subsidized sources of films except with a sharp eye to the motive behind their production and/or distribution, and with full realization that educational film supply from such sources will, at best, be fragmentary and not entirely free of bias.

The problem of the sponsored film—produced for advertising or public relations purposes by private business or associates—has been one of increasing concern to educators. This is particularly true today when advertisers and public relations divisions are turning to motion pictures with new realization of their potential power, and are looking to schools as sources of easy and wide

distribution of films to invite the good will and patronage of a new, large potential consumer group. This question of the place, if any, of the sponsored film in education was discussed by a group of educators interested in the school use of films, meeting in Detroit April 4-6, 1946. Following is a suggested policy set forth by this group.

> Public schools should serve the interest of all the people. Therefore, instructional materials used should be free of the influence of special interests.
>
> Audio-visual materials, particularly films, subsidized by special-interest groups, are being offered to the schools in increasing quantities. Some of these materials do have significant instructional values and do offer experiences not otherwise available. The use of the best of these, however, involves furthering the sponsor's interest in some degree.
>
> Schools cannot develop adequate audio-visual programs based solely on sponsored materials. Indeed, too great an acceptance of sponsored films will retard the development of the non-sponsored educational film enterprise.
>
> The use of a sponsored film can be justified only in terms of bringing to the learner a valuable experience that would otherwise be denied him. Constant care must be exercised in weighing the educational value of a film against the furthering of the sponsor's special interest.
>
> The final determination of whether or not sponsored audio-visual materials shall be used and the conditions under which they shall be used is a matter of local decision. Each school system has a responsibility for developing its own criteria and policy with regard to such materials.

One of the reasons that war-training films were so widely and so effectively used is that they were produced under the direction of those agencies of the Army, Navy, and Office of Education charged with responsibility for the development of the military and industrial training programs. Furthermore, the cost of production was borne by these agencies, *not by the user* of the films. War-

training films thus were made exclusively for use in specific training programs; they were tailored to meet the requirements of these programs; and their use involved little or no expense to the user. The production of war-training films thus involved little risk, financial or otherwise, to the producer. The war-training "curriculum" was standardized. In most cases the number of enrollees in any given part of the training program was established by known manpower requirements, and the training materials and procedures were specified by a single command agency.

Without an undesirable standardization and nationalization of the civilian education program, production of educational films involves the risk of private capital in the production of films for which the size of the market is relatively unknown at this time, and its purchasing power is already overtaxed by other demands, not the least of which is a decent salary for the instructional staff. *Every film produced for schools and colleges is a financial gamble* on two counts: (1) the subject may not be widely taught, or, if it is, there may be sharp disagreement on the where, how, and what of teaching the subject, and (2) granted that the subject is widely taught, school and college funds available for purchasing films may be insufficient to cover the costs of production, marketing, and reasonable return on capital investment. The diversity of curriculum from school to school, from community to community, and from state to state, and the excessive demands upon available school and college funds, make the commercial production of films exclusively for schools and colleges a great financial risk. On the other hand, the demand from teachers for films that can be used to enrich their teaching, makes the schools a ready outlet for the free "sponsored" films. In principle, the sponsored film is not the proper answer to the question of who is to supply educational films to schools. The answer is more in the hands of those commercial enterprises whose business it is to produce films for schools and colleges, just as other commercial organizations produce books primarily for schools and colleges. These enterprises, in turn, must produce films in terms of the basic market for school films. In areas of educational specialization, the amount of film usage is likely to vary as it did among the Army's specialized training

agencies, further increasing the financial risk of the educational film producer. As more projectors become available and as educational films become widely accepted as basic teaching materials for which funds must be appropriated, the film for specialized education may become economically self-supporting; but until such time, production efforts must be concentrated in the basic subjects if commercial production of educational films is to become a stable business enterprise. Meanwhile, and as a practical matter, "sponsored" films which conform to basic educational standards can supplement this supply, and, judiciously selected, can fill in many existing gaps in the educational film program.

ACADEMIC DE-EMPHASIS

The third major principle that emerges from the war-training film program is that the emphasis in educational films must shift from the subject-matter *as such* to subject-matter as it relates to the interests, abilities, and basic needs of the specific audiences for whom the films are intended. There are probably no three words used with more reckless abandon in professional educational circles as "interests, abilities, and needs," yet no three concepts are more important in education when they are given mature consideration and practical application to materials and procedures.

Another way of stating this principle in educational film production is to say that the accent in educational films must be softened on the organization and presentation of material in the pure logic of its subject-matter relationships, and must be heightened on the relationship of that subject-matter to the daily lives of the audience, including its rate of learning, the things in which the audience is or should be interested, and the changes in behavior that are to be expected as a result of the film presentation. Many prewar educational films were concerned with ideas and principles in *academic isolation.* Little attention apparently was given to the ability of the audience to absorb the ideas presented, to the importance of these ideas, or to applications and activities that could and should be made by the audience.

Somewhere between the Army's dominant emphasis on action

and the school's dominant emphasis on academic ideas lies a mean for educational films of the future. Not only must educational films deal cogently with facts, ideas, and principles, but they must present these facts, ideas, and principles in such a way as to be understood on specific age and grade maturity levels, and within a context of individual and social meaning and responsibility for audiences on these levels.

As an example of how this principle has been overlooked, it is necessary only to examine the wide range of subjects and age and grade levels for which individual educational films are said to have value. Typically, *the same film is recommended and is used* for teaching science in the elementary school, general science in the junior high school, physical or biological science or health in the senior high school, and physics or biology on the college level. While it is entirely possible that the general subject-matter of the film is of such fundamental nature that it could be introduced and learned successfully on each of these levels, it is likewise possible and highly probable that content of a film prepared for the first-year college level is not equally intelligible on all these other levels, nor does it satisfy the interests of the audiences on these levels. Nor is it true that these concepts will be presented within the abilities of audiences on each of these levels to grasp, or that the rate of presentation of the concepts will be equally adapted to the mental abilities of students from elementary school to college.

Generally such a film is prepared under supervision of a respected university professor. The contents of the film are thus conceived in terms of the subject-matter in which the film adviser is an expert. They are presented with the inclusiveness and compactness of the expert's own scholarly grasp of his subject. To the subject-matter expert, the contents of the film are entirely intelligible and are important, because the subject itself is important to him. Shown to a group of experts in the subject, the film would be completely intelligible and completely useless, since it merely illustrates what they already know.

In the early days of the Army's training-film program, many films were prepared in this general manner. The contents were

outlined by the subject-matter experts at the Army's specialized schools—Coast Artillery, Anti-aircraft Artillery, Ordnance, Signal Corps, etc.—which were the center of technical development of weapons, equipment, doctrine, etc. Their faculty members were experts in their fields. They had, in general, high technical knowledge and ability in their specializations. The early films produced in these areas correspondingly reflected the advanced and highly technical information and skills of the expert, but they had little psychological relationship to the practical problems and procedures in training drugstore clerks and stockbrokers to be anti-aircraft gunners, radar operators, or ordnance repairmen. While the films covered the subjects accurately and their content was authentic, the films were frequently beyond the ability of the audience of beginners to understand. They dealt with phases of the subject in which these beginners saw little practical application, and they tended to discourage interest and learning because the subject was presented with such complexity as to repel rather than attract. Typical was *Map Reading*, completely accurate and inclusive in content, but beyond the grasp of the average beginner. It was abstract; it failed to emphasize the necessity for learning the subject, and omitted any sequences which challenged the audience or piqued its interest.

The principle of making films in terms of interests, abilities, and needs of specific audiences may be illustrated by a film or series of films on food and nutrition. Every individual, of course, must have a proper diet if he is to be properly nourished. Proper nutrition, in turn, is necessary for physical and mental health. Basic films on food and nutrition should not deal exclusively with chemical and physiological aspects of food as such, but should present this information in such a way as to bring about desirable changes or reinforcements of habits of diet and eating, since a major objective in teaching the subject of food and nutrition is to get the individual to eat what he needs, to eat enough of certain kinds of food, to avoid excesses of other kinds, and to eat at the proper times.

In the typical prewar academic film, however, the emphasis

would likely be placed on the seven basic foods, and the physiological necessity of proper balance among them, with little or only incidental attention to presenting subject-matter in such a way that it would lead to an intelligent and active development in food habits. If, on the other hand, the subject is to be presented in terms of the interests, abilities, and needs of the audience, attention must be given in films on this subject to necessity of proper food in proper quantity to remain healthy so as to be an active member of a social group and to maintain status in that group, to maintain basic energy which is required in the active life of children and adolescents, as well as adults, and to insure normal growth and to avoid physical defects resulting from malnutrition. These involve the physical and social needs of the individual.

In providing for abilities of various groups, attention should be given in films on the subject to the abilities of variously aged children, adolescents and adults to grasp the explanations of body-building foods, energy-giving foods, vitamin-rich foods, etc. Abilities of the audience also involve the financial status of the families to which members of the audience belong. The subject of food and diet necessary to proper nutrition should be presented in terms of different income levels. The kind of a breakfast, lunch, and dinner that can be served to a family of four on a $5,000 yearly income is quite different from that served to a family of four on a $1,500 income. Many families simply cannot afford the kind of regular diet advocated in available films on nutrition. Cheaper foods containing elements essential to proper nutrition must be introduced and discussed. Furthermore, problems of working parents involve the question of whether certain meals are prepared for school children at all, and what the children themselves can do in preparing meals, particularly breakfast. Problems of various energy outputs and food requirements in physical activities and occupations should also be taken into account.

It is highly doubtful that all these considerations can be properly provided for in a single film. Probably a series of films is called for if the subject is to be dealt with adequately. But certain it is that these, and other considerations, would enter into films dealing with food and nutrition if the subject is to be given more

than an abstract academic treatment, and if the film and the teaching that goes with it are to influence behavior in such a way as to change or reinforce habits of eating so as to ensure proper nutrition, and, hence, physical and social well-being.

It is not implied in the foregoing discussion that technical films on the chemistry of food and on basic physiological requirements for food elements have no use in schools or colleges. The point is that such films are for specialized study by specialized audiences. The further point is that, for the general audience, the emphasis in films should shift from an emphasis on subject-matter in academic isolation to emphasis on subject-matter in relation to the needs, abilities, and interests of audience for whom the film is specifically planned. Such is the tendency in curriculum development in elementary and secondary schools, and such must be the tendency in films produced for use in these schools.

SPEARHEADS OF CURRICULUM DEVELOPMENT

The principle that educational motion pictures should be produced as basic teaching materials that spearhead new curriculum developments, rather than merely as supplementary aids supporting the status quo of the curriculum, was paramount in the production of orientation and training films during the war. This was a natural concept—the war-training program was new and ever-changing. Films were made as teaching materials within changing patterns and requirements of training. It was inherent in the urgency of the war-training program that films should be produced as basic teaching materials, because they were powerful media of mass communication, and that they should be used to promulgate new doctrines and new techniques in the training program since they were such an effective *means of reaching and teaching both instructors and students.*

This principle of film production (and film use in the curriculum) involves two concepts which are easily separated when applied to postwar films produced for educational use. First, films should be produced as basic teaching materials, not as supplementary aids. Secondly, films should be produced to spearhead

new curriculum developments, not simply to support or reinforce a status quo. *These two fundamental concepts vastly extend the rôle of motion pictures in education.* They affect the planning and production of postwar educational films in at least three ways: (1) the selection of curriculum areas in which films will be produced, (2) the number of films that will be produced within any selected area, and (3) the "story" treatment to be used in the films.

If films are not planned as basic teaching materials, they will not be produced in such patterns and quantities as to constitute a library of basic resource materials for the teaching of a unit or subject. If they are not planned so as to provide extensive coverage of specific curriculum areas, they will not be produced for specific audiences; they will not be treated in terms of the interests and abilities of specific maturity levels within the elementary, secondary, college or adult population. Finally, unless they are planned as teaching materials which spearhead development, they will not exemplify the best procedures of the curriculum, and, as a result they may fail to motivate both teachers and students to experiment with these curriculum procedures.

It is fundamental to the consideration of films as basic curriculum materials that they should be produced in series so as to provide extensive coverage of a specific curriculum program. One of the reasons that films were so useful in the war-training program is that they were produced in series covering essential phases of specific training programs—in both basic and specialized training. For instance, the "Why We Fight" films were produced as a series, each dealing with an important phase of movements and events that led to the war and the various campaigns. Another series of orientation films was devoted to the nature of our allies and of our enemies. Films for basic training were made as a series, each film covering an important element: military courtesy and customs of the service, the *Articles of War*, personal hygiene, close order drill, etc. A series of several films was made on the subject of rifle marksmanship, and a much more extensive series on automotive maintenance and operation. In the technical fields there were series

on basic electricity, on principles and operation of radar, and on other phases of specialized training. In the area of basic conduct and emotional control, films were produced as the "Fighting Men Series."

The practice of producing films in a series to cover a specific area of training—each film in the series covering an important phase or element of the specific training program—was also followed by the Air Forces, the Navy, and the United States Office of Education. The number of films in the series varied from two or three to as many as twenty, each covering a basic topic, or concept, or operation. Taken as a series, these films constituted a library of basic teaching materials designed for integration into the training and orientation programs and used as a regular, important part of the teaching procedure. They fit into the curriculum because they were planned and produced for use within specific areas of the curriculum—not simply as movies which could be stuck in here and there as supplementary aids, interesting perhaps but not basic to the instructional program.

Production of films in series for postwar education involves a reconsideration of the depth and extensiveness of subject-matter coverage in films. Less subject-matter coverage is required in a given film and more films are required on a given subject. Extensiveness of coverage in any individual film must be so narrowed that the presentation does not involve more than can be comprehended or effectively motivated in the ten, fifteen, or twenty minutes of the film showing. On the other hand, subject-matter coverage must be extended through the production of a number of films to cover a unit. Thus individual films can be made with greater depth of subject-matter, and the series of films can be made with greater breadth.

Production of films as basic teaching materials also requires a narrowing of the intended audience to specific age or maturity levels within the school population. While it is conceivable that films of a general informational nature will have wide usefulness, it is unlikely that basic curriculum films will be equally useful on a wide range of interest and maturity levels, or in a wide range

of specialized and formalized subject-matter areas. There has been a general holdover from the theatrical motion picture that any film is satisfying equally for children and adults. This error can be corrected in production planning by aiming series of films for specific maturity levels, and by planning and producing separate series of films in the same general subject area for different audience levels.

Planning films as spearheads of a developing curriculum involves at least three things. First, it involves the unqualified acceptance of motion pictures as teaching materials, rather than as a medium whose primary and almost exclusive function is to portray motion and its variants of slow motion, fast motion, and animation. This does not mean that no motion is involved in a motion picture. It is merely a recognition of the obvious fact that motion pictures are fundamentally a dynamic and powerful means of communication. Outside the production of educational films there is no such deliberate and stubborn attempt to limit the motion picture to its "unique function" and to segregate it from every other kind of communication. If the over-analysis of function in terms of the depiction of "motion" that has been applied with such academic stubbornness to educational films were applied to other media of communication, fewer novels would be made into films, fewer motion pictures would be dramatized over the radio, and fewer books would be written that involve visual imagery. As inviting as this eventuality may appear to some critics of current movies, radio programs, and books, the fact is that there is no rigid separation of "unique" subject-matter among books, newspapers, movies, and radio produced for public consumption.

When educational films are broadly planned as *teaching materials*, rather than limited to their so-called "unique function" of "the portrayal of motion," new areas of the curriculum immediately will be opened for their production and use. The language arts, arithmetic and other mathematics, health and nutrition, elementary science, art and music, recreation and sports, social organization and social ideals, citizenship and world outlook, and other important areas of the curriculum which have hitherto been regarded as *off limits* for educational films because they do not

involve unrelenting motion thus become fertile fields for production and use. The narrow conception of educational motion pictures exclusively in terms of motion has been a mental obstacle to the production of films which are basic teaching materials in important areas of the curriculum.

The second way in which films can spearhead new curriculum developments is to incorporate in their contents the modern trends in teaching in various subject-matter areas. In the elementary social studies for instance, there is a trend away from a separate study of civics, geography, and history, toward an integration of experiences in units which deal with processes of social living. There is a further tendency to weave into these units such art, music, and quantitative experiences as are functionally related to the unit, without, of course, displacing systematic instruction in these fields necessary for orderly growth of abilities, ideas, and appreciations. In the teaching of arithmetic there has been a wide acceptance and development in the so-called "meaning" method of arithmetic instruction, pioneered by Professor William A. Brownell, of Duke University. Equally evident are the trends toward more expression and appreciation in the fine and industrial arts and music, and toward the introduction of science experiences below the junior high school. Throughout the elementary curriculum there is a healthy tendency to emphasize *student* activity, to relate school experience to the lives of the pupils and the community in which they live, and to develop habits of inquiry, creative expression, social attitudes, and spiritual values.

Curriculum developments on the secondary school and college level are not so clearly defined or in evidence, but the tendency is toward a more functional and general secondary education, and away from exclusive specialization and academic preparation for higher study. Some of these tendencies are ably justified and their direction indicated in the Harvard Report on *General Education in a Free Society*.

A third way in which films can spearhead curriculum development is by the demonstration in the film, as part of its "story" treatment, of the best curriculum practices in classroom teaching. As will be discussed in the next chapter, it has been demonstrated

in the war-training program that remarkably effective teaching films can be produced by the reenactment of classroom, field, or other instructional situations in which both the instructor and the students are portrayed in the teaching and learning situation.

Films which show effective instructional procedures serve two important purposes in addition to their direct value as teaching materials: (1) they demonstrate good teaching procedure to the instructor using the film, thereby making such procedure clear and inviting, and (2) they motivate the students to engage in the kinds of activities portrayed. With respect to science experiences in elementary schools, for instance, emphasis falls on field trips and classroom experimentation with simple, inexpensive, or homemade equipment. These offer promising possibilities for educational film treatment—in terms of a film field trip by a class, or classroom experimentation by the teacher or the students, or by the teacher *and* the students. Such a "story" treatment brings the subject into close psychological reach of the students by use of "location" in a familiar context. At the same time, it can clearly show the teacher how this kind of teaching can be done, and thus result in an initial motivation and feeling of security. The effect on the class is likely to be even more evident in motivating a desire to repeat or engage in activities similar to those shown in the film. The production of films which demonstrate modern curriculum practices means that educational films have an increasingly greater importance in education. They are good materials for teacher education in service, and for motivating effective teacher and pupil activity in the classroom situation. Other techniques of "story treatment" which make for more functional learning and for greater activity on the part of the audience are discussed in the next chapter.

The fourth phase of spearheading the curriculum in postwar films concerns the broader objectives of education: those that relate to the attitudes and beliefs of Americans, to their moral concepts and behavior one with another, and group with group, and to the development of habits of behavior consistent with high principles. In part this involves the development of films in the areas of "guidance," "education for citizenship," "character education," "intercultural relations," "human relations," "education for peace,"

etc. Some of the implications of films for these areas were discussed in Chapter II (films dealing with orientation, conduct, and self-control). Despite the demonstrated effectiveness of films in influencing attitudes and beliefs, developing understandings, motivating conduct, and stimulating habit development, there has been only scattered production of films for schools which can be used to attain these objectives in the curriculum. Little or no attention has been given to the production of films which can be used to develop various aspects of critical thinking—to habituate students in the techniques of good thinking, analysis of data, or formulation of conclusions.

Schools need a "Men of Peace" series in place of the "Fighting Men" series. They need a "What We Fought For" series to replace the "Why We Fight" series. They need a "Know Your Neighbor" series to replace the "Know Your Enemy" series. They need films on "Live and Let Live" to counteract war films on "Kill or Be Killed."

This discussion of films as basic rather than merely supplementary teaching materials, and the rôle films can play in curriculum development is not intended to convey the impression that no supplementary, illustrative, or general films should be made for or used in education, or that instructional films should not be produced to implement curriculum areas which remain relatively stable. Neither does it mean that no films should be made which deal with basic concepts that are relatively constant in the curriculum, irrespective of whether it is organized on a rigid subject-matter basis or along the lines of current curriculum doctrine. Nor does it mean that everything taught from kindergarten through graduate and professional schools is a fit subject for film production and use. The point is that prewar educational films were conceived almost exclusively along these latter lines, that film developments in the intensive war-training program have widened the horizon and the importance of films as basic teaching materials and as spearheads in curriculum development. Postwar educational film production and use cannot proceed in disregard of wartime developments if there is to be any real progress in the effective use of films in postwar education.

PROFESSIONAL PRODUCTION TALENT

The fifth principle of educational film production that can be learned from the war-training program is that films for school and college must be professionally produced if they are to compete effectively with entertainment films for the development of orderly intellectual and emotional growth, and for the development of norms of civilized behavior.

As was pointed out in a previous chapter, it is a truism that Americans are a movie-going people from childhood through senescence, and that the movies they see influence their ideas, attitudes, and conduct. Equally evident though commonly ignored is the fact that there is competition between the orderly forces of education and the disorderly forces of the movies, the radio, and the comics for the interests of children, adolescents and adults. This competition is not deliberate—and competition may be the wrong word to use. But there is no question that the movies, the radio, and the comics attract a large and habitual audience, and that they hold this audience through their use of dramatic structure, excitement, and suspense, created and sustained by highly paid and highly skilled artists and craftsmen.

Motion pictures produced for educational use are shown to an audience in school which also goes to the movies in the neighborhood theater and has been exposed to and influenced by the technical standards of the entertainment film. While this is also true of both entertainment and educational radio programs, there is a difference with regard to reading (except the comics) since the child is taught to read in school and much of his reading, both for interest and pleasure, is done to satisfy school requirements or under school guidance or the guidance of parents and public librarians. Reading standards, reading tastes, reading habits, and reading motives, then, are developed in school and under school influence, with the expectation that this influence will remain dominant throughout the educational career of the student.

On the other hand, standards and tastes in movies are brought

into the school by the pupil from the entertainment world. Educational films are viewed in terms of these theatrical movie standards. If educational films are to exercise the same powerful influences in the orderly development of mind, motive, and conduct in the school curriculum, that they exercise through the theater in a possible disorderly, inconsequential, or even unwholesome way, they must be made so as to compete on a professional basis with theatrical films, even though the subjects treated in school films are necessarily very remote from many of the subjects treated in the neighborhood movies. The solution of this problem—and it is a real problem—lies not in making educational films purely entertaining, but in adapting the techniques of the entertainment film in order to make educational films more truly educational.

It was the blending of the abilities of the Army's professional training officers and subject-matter specialists, on the one hand, with the abilities and facilities of professional motion picture producers, on the other, that resulted in the remarkable educational effectiveness of the Army's basic training and orientation films and those which dealt with the development of habits and control of emotions and conduct. From a careful study of the Army's film program no single fact is more evident than the importance of teamwork between professional educators and professional motion picture talent—writers, directors, cameramen, cutters, etc.—in the production of educational motion pictures.

This does not mean that entertainment or industrial motion picture producers should "take over" the production of educational films. On the contrary, it means that educational groups and professional motion picture producers should work together to make films which conform to educational needs and standards. This is exactly what the Army did in its film program.

The Army's training commands knew what they needed to teach and to whom. The Army's film producers knew how to treat the subject in an interesting and compelling way. Thus, the Army laid down the "doctrine" to be set forth in the films, and the motion picture agencies turned their technical talent to the task of presenting this "doctrine" in motion pictures in such a way that it aroused

the interest of the audience, held that interest, and put the lesson across.

The responsibilities of both the training agencies and the motion picture production agencies were dovetailed so that each was responsible for that which it could best do. The training agencies determined what the film should cover, its exact subject-matter content, and its intended audience. On the basis of this content outline, the scenario was prepared by the motion picture agency, and submitted for approval to the training agency. Upon approval, the training agency provided a technical adviser who was assigned to the production agency during the preparation of the picture to advise on all technical matters involved in the film. The finished film was then approved by or changed in accordance with the desires of the training agency. In this way, professional personnel and facilities of the motion picture industry were placed at the disposal of the training agencies of the Army, to convert the subject-matter into a teaching film which incorporated the best movie techniques.

The training agencies, corresponding to civilian schools and colleges, *did not* prepare the scenarios or *shooting scripts*. They *did not* write the dialogue or the narration. They *did not* determine the story form of the film or its dramatic structure. They *did not* supervise production except as technical advisers who passed on the authenticity of the scenes, etc. The training agencies *did* determine whether a film should be produced, whether it should be one film or several films. They *did* determine the content of the film, the objectives it was to serve, and the audience for whom it was intended. The training agencies *did* exercise approval or disapproval over the scenario prepared by the motion picture production agency, they *did* provide technical supervision in the "shooting" stage, and exercised the final approval or rejection of the finished film.

With this kind of teamwork the Army's films became more like motion pictures than textbooks. They were motion pictures very much to the point of teaching, not entertaining, but they also were "good movies," interesting to watch, effective as instruction, stimulating in their teaching—easy to look at and easy to learn from. At

least that was the goal of everyone who had a part in their making. Like all other human efforts, they achieved this goal in varying degrees of perfection.

The lesson for educational film producers is not that all educational films should be made in the big movie studios. For many years to come schools and colleges cannot support the cost of such productions. Moreover, Hollywood's talents do not necessarily lie in the production of straightforward films on technical subjects, many of which must be produced in the fields of science, vocational training, engineering, medicine, architecture, agriculture, and other applied arts and sciences. The lesson is that preparing scenarios and scripts, casting and shooting a film, editing it, and adding sound, are professional motion picture jobs. Teachers and textbook writers, without professional experience in motion picture production, are not at their best when they try to write or direct motion pictures, even though these motion pictures are to be used for teaching. It takes professional talent from the motion picture industry (theatrical or non-theatrical) to turn what is to be taught into a film which will have power in teaching it. Conversely, it takes the educator to determine what is to be taught, and to judge the finished film for its educational effectiveness.

The activity in film production in the war-training program has trained and experienced a great many people in educational film production. There is likely to be disagreement among them as to what an educational film is, since the basic concepts of the nature and techniques of educational films differed among the various military and civilian agencies responsible for their production. Nevertheless, these experienced educational film producers are available, and some of them want to make films for schools and colleges. Many of them are sincerely devoted to an activity in which they can use their talent, training, and experience in such a way as to help make a better world through education. It will be little less than tragic if there is no place in education for them, because educators neglect or are handicapped in developing the wider and more effective use of educational films, and in applying the lessons of teaching learned in fighting a war.

5

TEACHING TECHNIQUES IN FILMS

IT IS OF LITTLE PRACTICAL VALUE to contemplate broader horizons for films in education, or the basic areas of the curriculum for which they should be produced, or the rôle of films in nudging the curriculum forward, unless consideration is also given to the film techniques appropriate to these ends. Educationally, motion pictures are a new wine, and scripture warns against pouring new wine into old wineskins.

In many schools and colleges where motion pictures are used, they are not effectively used. This fact bears no fruit of controversy. It has been widely recognized both by those who produce films for schools and by the educators who have recommended the purchase of these films and are, at least administratively, responsible for their use. The standard prescription to remedy ineffective use of educational films is more and better teacher training and/or education in methods of use. It is obvious to anyone who has even a speaking acquaintance with the present use of films in the curriculum that teachers must be trained to handle projection equipment, that they must be acquainted with the films available to them, and that they must understand what films are and how they can and should be used. But the responsibility is not exclusively the teacher's, nor can it be corrected solely by more teacher training, by better channels of information, and by books, lectures, discussions, and demonstrations of methods of good film use.

Effective use of films in education begins with the film producer, not with the teacher. If films are to be effectively used, they must be produced so as to facilitate good use—almost to compel it. This means that films should be made so that the *most effective use of the film is its easiest method of use,* and the *least effective use of the film is its most difficult method of use.*

Good teaching with films means good teaching methods *in the films.* It is unreasonable to expect that the teacher, under daily pressure of "the killing weight of numbers, . . . the struggle against bad backgrounds and influences, the impersonality implicit in any big system," should assume responsibility for adding to educational films those elements of good teaching which properly belong in the films themselves. Good teaching requires good teaching *tools* as well as good teachers. The value of good teaching tools in the hands of good teachers has been indicated in the research studies on film values in the Army training program, reported in an earlier chapter.

If films are to teach, they must be made so as to stimulate and influence the reactions of the student audience in proper directions. If the audience remains functionally indifferent to or mentally satiated with the subject presented in a film, if its interest is not aroused or if it draws erroneous inferences or conclusions, or rejects the content of the film as propaganda when it isn't, or as absurd, or obsolete, or impractical, or as completely dull and worthy of no further pursuit—the film has failed to teach properly. Proper teaching involves influencing reactions in precisely the opposite directions.

Obviously, student reactions to films shown in the classroom do not occur in a vacuum, but in the context of the curriculum. However, if the films themselves do not facilitate curriculum activity and add to it something worth while without the everpresent, the corrective, and the obnoxious *tutorial* activity of the teacher, they are inconsistent with the modern curriculum. They may, contrariwise, contribute to an undesirable type of learning. Psychologists are insistent that learning is multiple, that children in school don't learn just one thing at a time, but several things. They may be

learning to be dependent, or antisocial, or cynical, while the best intentioned teacher, using ineffective methods or materials, aims at loftier and, sadly, chimeric goals.

The general subject of educational motion pictures must be approached in a spirit of intellectual humility, and no single phase of the subject calls for more humility than the matter of techniques in films that make them educationally effective. As a superintendent of schools recently remarked about the visual education program in his schools, it is the least scientific of all modern educational developments. One reason for this is the almost complete absence of research data on audience reactions to various kinds of educational films. Prior research studies have not attempted to penetrate beyond the question of general values of films in education. There is need for research to determine effectiveness of various film *techniques* with various audiences, in achieving various educational objectives. Among other reasons, research has lagged because there has been so little experimentation by film producers in introducing a variety of teaching techniques in educational films. And one reason why there has been so little experimentation is that films have been produced with the stress primarily on the accuracy, authenticity, and compactness of subject-matter content, rather than on presenting the subject-matter so as to stimulate learning activities.

There was considerable experimentation in the development and some research in the effectiveness of various teaching techniques in films produced for the war-training program. From this experience it is possible to extract some data on techniques that may be useful in the preparation of films for schools and colleges. It may be argued that the objectives, procedures, and circumstances of military training are so different from those of civilian education, that the teaching techniques used in the military training program have little application to civilian education. But the broad objectives for which war-training films were used are the same *in kind* as those of civilian education, and the use of films in the military training program was much more comprehensive of these objectives than has been the use of films in schools and colleges.

To dismiss educational applications of military teaching techniques by pointing out that the personnel of the Army and Navy was made up predominantly of male adults, while the population of the schools is made up of male and female children and adolescents, is to overlook the fact that the Army and Navy trained many of the same young men and some of the same young women that the schools had failed to educate, for a substantial proportion of these trainees had left school before reaching or finishing high school. It is also to overlook the fact that the Army found it necessary to organize a specialized training program (discussed in an earlier chapter) in order to teach reading and arithmetic so as to bring some of its selectees up to the standard of fourth-grade performance in these subjects.

Both the schools and the Army and Navy have much in common in their educational and training programs, and there are good reasons for assuming that lessons learned about techniques that increase or decrease the teaching qualities of films produced for military training can be applied to films produced for civilian education.

AUDIENCE REACTIONS TO FILM TECHNIQUES

Let us make a quick examination of film techniques that have been found to add to or detract from the teaching values of films produced in the war-training programs. A few general guiding statements can be formulated on the basis of research studies of audience reactions to Army training, information and orientation films, conducted by the research branch of the Army's Information and Education Division. Although the studies from which the following points have been extracted were made, for the most part, under carefully controlled experimental conditions, the following conclusions were *supported* by the data, rather than conclusively *demonstrated* by them. Nevertheless, the conclusions seem self-evident from a common sense point of view.

1. In an educational film it is not the importance of the thing shown but *how forcefully and how vividly it is presented on the*

screen that determines whether the scene will be noted and remembered. Light humor, unusual association, repetition, dramatic incident, etc., are factors that lend force and vividness to a scene.

This basic fact of audience reaction has important implications for educational films. It has often been assumed by film producers that the mere presence of a scene insures that everything in it will be equally noted and remembered by the audience. Audience research indicates that such assumption is wrong, and that the things on the screen that are noted and remembered best are those that are forcefully presented, not shown incidentally. If the scene is important and it is to be made important to the audience, it must be treated on the screen with the importance it deserves—with force and vividness.

2. To be effective, *commentary or dialogue must be clear and natural.* The audience resents a bombastic commentary. It resents being talked down to either by the actors or the commentator. It resents bad grammar in a film, even though the audience may be vividly ungrammatical in expressing its resentment. It also resents affectation in the voice of the commentator.

Films made for school and college use have not offended in these respects. Educational film commentary may be too hurried or too technical, but it has not been deliberately made ungrammatical to achieve *rapport* with an audience, nor has it been condescending or affected. If anything, it has lacked simplicity, warmth, and variety. It has been dull and heavy handed.

3. *Action is more effective than people talking about action.* In a motion picture, the audience wants to see the subject, not just to hear it discussed. Nothing is less satisfying psychologically or educationally in films intended for schools than the discussion of a subject in the commentary without full coverage of the subject on the screen. The audience wants to *see the sights*, not simply to hear them described or interpreted. It is almost axiomatic that, unless adequate picture coverage is provided, the subject should be omitted entirely from a motion picture.

4. *Any use of pictures or "special effects" not readily plausible or understandable must be explained.* An audience not able to

comprehend how a picture could have been taken of the subject will reject the entire sequence unless the devices are explained in the picture. In some early Army films, footage from captured enemy films were inserted without explanation of how they were obtained. As a result, the audience regarded such sequences as propaganda. Typical of their reaction was the following: "How could our cameramen shoot that picture? It was taken back of the enemy lines. That's just propaganda!"

Any use of photographic techniques, including slow-motion or fast-motion photography, particularly with younger audiences requires careful explanation in order to achieve its full effectiveness.

5. *Repetition of "stock shots" has a poor effect on the audience.* The same footage, used over and over again in different films, is quickly recognized by the audience with the result that such scenes are unfavorably received. New educational film production which relies on stock footage faces the possibility of rejection by the school audience if this audience or some members of it have seen this footage in newsreels, documentary, or other educational films.

6. *More mature audiences are keenly sensitive to propaganda.* Any picture that even smacks of special pleading or special interpretation encounters audience resistance, even though there may be a disposition toward the cause for which the plea is made. However, there tends to be a favorable residue reaction, except as noted in an earlier chapter with reference to the "Why We Fight" films.

7. *Films which deal with large ideas and interpretation of individual acts or situations in terms of these large ideas can easily, and frequently do, shoot over the heads of an audience.* If the factual material is complicated and condensed, much of it will be missed by the audience. This leaves only a more or less superficial acceptance of the generalizations stated in film without the development of adequate meaning of these generalizations. A general attitude remains, but the facts supporting it are missing. This result is in contradiction to the educational purpose of the picture: to develop an understanding of specific facts, their meaning, and the reasons behind them.

Such films are effective in shaping attitudes, but they shape these

attitudes in the wrong way. In the words of the Harvard Report, "Few traits more clearly distinguish good teaching from bad than intelligent use of the principle that interpretation and generalization, though important, are valuable only when based on an understanding of the facts to which they relate."

8. *The lasting effectiveness of comic cartoons as a teaching device in motion pictures is open to serious question.* While the comic cartoon is instantaneously amusing to and well liked by the audience, its lack of seriousness tends to make it less worthwhile when viewed in retrospect by the audience. The popularity of comic cartoons as entertainment does not assure that the "moral" of the cartoon will noticeably affect the behavior of the audience.

An interesting adaptation of the cartoon to the telling of a serious story *without the use of comic characters and comic antics* was developed in films produced during the war years for the Office of War Information and the Office of Coordinator of Inter-American Affairs. *Something You Didn't Eat* and *The Grain That Built a Hemisphere* are examples of this adaptation of the cartoon to educational purposes. On the other hand, both the Army and the Navy developed cartoons which featured comic antics of comic characters to get across some fundamental military lessons. It was with reference to the "Snafu" cartoons of the Army that the conclusion was drawn regarding the question of enduring effect on behavior. The Navy discontinued its cartoon series as ineffective.

Observation of young children's responses to cartoons indicates that cartoons are vividly appealing, but that they do not need to have much meaning to the children in order to be enjoyed. The comic antics of the characters and the movement of colors on the screen are highly entertaining. In education, however, it is the meaning, not simply the entertainment, that is important. This is not to depreciate the value of emotional experiences—releasing, pleasant and satisfying—in education, but to point out that these experiences are not necessarily related to the objectives of education simply because they are enjoyable.

The universal popularity of the cartoon with young and old alike raises the question of its adaptation on a wide scale to educa-

tional purposes: Is a combination of photography and serious cartoon more effective than the animation alone? and how much of the cartoon's popular "antics" can and should be added to give a whimsy and warmth to an educational film without over-shadowing the "moral" or the "lesson" to be put across? As indicated, it is vividness and forcefulness of material presented on the screen that registers with the audience. The cartoon, particularly the color cartoon, is a vivid method of presentation. How forceful it is and can be is a matter for experimentation and research.

9. *Humorous sequences and humorous treatment of a subject can, if too prominent, weaken a film as a teaching medium.* The humorous sequences are remembered, and the lesson they are intended to teach is forgotten. A balance must be maintained between devices intended to arouse and sustain interest in the subject shown in the film, and the forthright lesson to be taught by the film. It is very easy for the lesson to be lost in an over-emphasis on the entertainment features that are injected into its telling.

THEATRICS VS. TEACHING

Occasionally there was an over-use of theatrical techniques in the Army's training and information films. This same mistake can easily be made in educational films if and when it is accepted that the technical production of films is the job of the professional filmmaker. The danger lies not in the adaptation of theatrical film techniques to educational films, but in the use of these techniques *without adaptation.*

There is no fine line between interest and entertainment. One of the foremost problems in the production of educational films is to make them interesting, and one of the pitfalls of making them interesting is the temptation to make them amusing, or otherwise too highly entertaining. Interest leads to learning. Entertainment may lead to learning—even to learning something different than intended.

What is perhaps a classic example of unexpected audience reaction to a training film in which theatrical techniques may have

defeated themselves is described in a paragraph that appeared in *Closeup* (August 28, 1945), the weekly house organ of the Signal Corps Photographic Center.

> "Yank," the Army Weekly, has just forwarded a letter to SCPC from a group of fifteen enlisted men in the Pacific. The missive is a unique tribute to a GI casting director. We quote: "Upon seeing the War Department training film, *Pick-Up*, there has been much discussion about the girl playing the main rôle. Who is she? Please believe that this is no stab at warped humor. Miss X is very beautiful and many of us would seriously like to have her picture." *Pick-Up*, in case you didn't know, is the Army film on venereal disease.

The intention of the film was to play up the rôle, not the actress, and to dramatize the dangers of the rôle, not the beauty of the actress playing it.

It may be premature to sound a warning against the over-use of theatrical techniques in educational films—against confusing interest with theatrics to the loss of effective teaching. Such warning is made in anticipation of a reaction away from the academic woodenness that has characterized educational films in the past. Such a reaction is likely to breed excesses in the direction of entertainment, with the result that the baby may be thrown out with the bath water.

SLOWER PACING OF FILMS

One of the significant advances in making war-training films into effective teaching materials was a slowing up in *pace*. This was a hard lesson for the war-training agencies to learn, just as it is hard for educational film producers to learn. But it *was learned* by the agencies which produced films for war training, and it *must be learned* by those who produce films for postwar education. Educational films, like Army and Navy training films, must change pace, if they are not to shoot over the heads of the audience. Educational filmmakers, over-anxious to cover a great amount of

material in a short time on the screen or to avoid a "drag" of the subject, frequently pace the scenes too rapidly for the *learning* audience. They tend to forget that the audience is not as familiar with the subject as are the people who made the film, that learning is a *slow* process, and that if too much is shown too quickly it simply cannot be absorbed.

Watching a motion picture is an absorbing experience. It is a reciprocal process. The audience becomes psychologically absorbed in the motion picture, and, in turn, absorbs what the motion picture shows. In this reciprocal process lies the power of the motion picture as both an entertainment and educational medium.

If educational films are to be truly educational, they must be paced so that the audience can absorb what is shown on the screen. They should not move any faster on the screen than the audience can move in its learning process. In early training films as in prewar educational films, too much was shown on the screen too fast. The films were made to suit the professors, not the students. They presented their material so that it illustrated a subject with great clarity for those who already knew it, but failed to present it in such a way that it could be learned easiest and best by those who are just beginning to grow into the subject. They covered more subject-matter than could be absorbed effectively in one sitting, and they covered this subject too rapidly for the audience.

The problem of pacing is more acute for the maker of educational films than it was for Army and Navy films producers, in that the latter produced films only for an adult audience, whereas the former must produce films for audiences varying from kindergarten to university levels. As has been pointed out, some of the Army films overshot their adult audiences. Those familiar with prewar educational films know that this mistake was not unique with Army films.

On the basis of developments of improved teaching qualities of films produced for the war-training program, it is possible to distinguish five changes that must be made in the pacing of films produced for schools and colleges:

1. The scenes must remain on the screen long enough for the audience to absorb what appears there.

2. Scenes and sequences that show complicated action or operations, or that have an emotional as well as intellectual fascination for the audience, should be deliberately repeated in the film to ensure adequate psychological absorption.

3. Major sequences, covering important parts of the subject, should be followed by a psychological pause on the screen in order to provide for a mental "settling down" of what was shown. In his lectures at Duke University on the psychology of memory, the late Professor William Stern, pioneer in child psychology, pointed out the problem of retroactive inhibition in motion pictures. Retroactive inhibition involves the inhibition by present activity of memory of previous activity. It is one psychological explanation of forgetting. If scenes and sequences are presented at a swift pace, the attention given to the immediate scene tends to inhibit the response to the previous scene, with resulting loss of retention. Retroactive inhibition, induced by too rapid presentation of scenes and sequences, offers an explanation of why students sometimes appear to be more confused than enlightened by the showing of a particular educational film.

4. There must be a greater variety of scenes and situations relating to the major understandings, appreciations, attitudes, or behavior patterns the films intend to develop, so as to provide a depth and variety of meaning. It is not simple repetition, but repetition in variety that is the "law of learning." Learning is like bathing—a bath is best when there is time for soaking, lathering, and splashing around in the water—not just an in and out dip in the tub or under the shower.

5. The commentary must be slowed up. It must change in tone from a bookish lecture, couched in high abstraction and broad generalization, to an unobtrusive descriptive, explanatory, interest-provoking and question-raising style in language within the group of its intended audience. This does not mean that the commentary be done in dialect or slang, except where these are essential parts of the film itself. The commentary is most effective when it

meets the audience on the latter's own terms, in order to induce the changes in behavior that the film is intended to develop. It does not meet the audience on its own terms when fourth-graders say, "That's pig-Latin. Why doesn't he talk English I can understand."

APPROACHES TO AUDIENCE INTEREST

It would be needless repetition to discuss further the fact that films, to be teachable, must be interesting to their student audience, were it not for two things. First, the same cleavage of opinion on the need to make films interesting existed in the film programs of the Army, Navy, and other governmental agencies as now exists among those who make films for schools, and colleges. Secondly, interest in any subject presented in a film varies in degree with different audiences. No single formula can be universally applied to make all films equally interesting to all people.

In the Army there were two schools of thought on the proper technique of treating a subject in training films. (1) One held that the major emphasis in a training film should be placed on the accuracy, completeness, and clarity of subject-matter coverage. This premise was based on the following assumptions: that training films would be used under ideal teaching circumstances; that audience interest in the subject would be strongly motivated; that "readiness" for the film would be developed through training experiences preceding the film showing; that audience preparation for attentive and selective observation would be provided by the instructor immediately preceding the film showing; and that exercises or discussions in which the lessons of the film are elaborated and applied to subsequent activities would follow the film showing.

(2) The other school of thought held to the premise that training films should avoid dullness; that above all they should be made interesting to the audience; that, to be interesting, full and appropriate use should be made of dramatic structure, character development, and dialogue; and that the lesson should be taught where possible in story form with an occasional touch of humor.

This school of thought held that the best teaching results when the subject is made most interesting to the audience; that much of the influence of the motion picture on the human mind, emotions, and actions derives from its ability to reproduce life's situations with dramatic realism; and that learning is not merely an intellectual activity, but must also involve sensation and emotion if the learning is to effect permanent changes in behavior. No assumptions were made by this school of thought regarding the inevitability of ideal circumstances under which the films would be used in the training program. Under ideal teaching conditions, they believed, the reproduction of life-like situations in the film reinforces the training program and adds the element of realism to instruction. Under less ideal teaching circumstances, the film kindles the fire of interest and drives its lesson home despite far from ideal physical conditions of film use or mediocre instructional procedures.

As experience in the production and use of films in the training program accumulated, it became clear that these two schools of thought were not irreconcilable, nor could either be applied exclusively to all films produced for all audiences and all training situations. The advocates of each approach absorbed the good elements of teaching from the other, so that the straight expository or demonstration film took on qualities that made them more interesting, and the more dramatic narrative films took on the qualities of forthrightness that made them more effectively educational—that sharpened the lessons dramatized.

A working rule for the use of each type of film can be formulated as follows, pending research in film techniques which will establish its validity or necessitate its modification:

1. In general, *story treatment, characterization, and use of various interest-catching techniques are appropriate in films intended for introductory or refresher use in teaching a subject to a general audience.* The devices of dramatization, narrative, plot, and live action, dialogue, and sound effects serve to make the subject interesting and important, thus laying a solid foundation for continued audience interest in the subject, arousing a curiosity to know more

about it, and motivating a strong desire to attain a high degree of achievement in the subject, whether it deals with basic electricity, human biology, health or nutrition, or brotherly love.

2. In general, *the purely expository type of film, with straight factual presentation and purely impersonal commentary and explanation, is appropriate to any subject in which it can reasonably be assumed that interest, curiosity, and the motive for achievement are already present in the audience, that its curiosity for more knowledge has been awakened, and its energy has become directed toward mastery of the subject.* This straightforward type of film thus serves to satisfy the existing urges for knowledge. In so doing, it may deepen interest, transform shallow curiosity into resolute inquiry, and turn the desire for achievement into the confidence and satisfaction that come from intellectual conquest of the unknown. An audience is impatient of any device in films or other teaching materials or methods that interferes with pursuit of knowledge of a subject in which it has already achieved some competence and in which it wishes to advance to further technical or specialized competence.

The desirability and necessity of straightforward, factual films does not vitiate the desirability and necessity of films which give a personal or social orientation to specialized fields of knowledge. On the contrary, the existence of any sizable body of technical knowledge, and any sizable population possessing and pursuing this knowledge, is all the more reason for "refresher" films of a more dramatic type dealing with the ethical and social obligations governing these specialized fields.

BASIC STRUCTURE OF TEACHING FILMS

The men who actually made the motion pictures for the military training program would be the last to admit that they had developed or followed any formulae intended to strengthen the teaching values of their films. They regard each motion picture as an individual creation—like a painting, a play, or a short story. There are general structural rules that apply to each of these but

the production of a worth-while play, short story, painting, or motion picture calls for more than the mechanical application of these rules. Artists and writers and movie-makers do not produce by conscious application of rules. They produce by feeling and intuition. They seldom intellectualize their art or their approach to its creation.

What actually happened over four years of intensive training-film production was that a teaching structure for films evolved out of trial-and-error experience. This structure was not used in identically the same way nor with equal emphasis on all its elements in any two pictures, but it served in principle in more and more training films during the last year or so of the war. The structure involves four elements around which the film treatment is developed:

1. The film opens on a familiar situation which calls for certain knowledge, skill, or a certain behavior pattern in order to meet the situation adequately. This serves to develop a *rapport* between the audience and the film. It enables the audience to identify itself with the situation and subject presented in the film, and it supplies a motive for attending closely to the film, and thus, for learning from it.

2. The information or skill necessary to meet the situation is presented in detail, generally with a combination of demonstration or dramatization and explanation suited to the background of experience and the learning abilities of the audience.

3. After the detailed demonstration, or dramatization, and explanation, the main points, or situations, or key explanations are reviewed and summarized, thus providing for an intellectual summing-up of the main points covered in the main presentation of the film.

4. The problem is then turned toward the audience and the film closes in such a way that the audience is left with a feeling of personal responsibility for continued learning activity, for performance similar to that shown in the film, for direct application of the principles involved in the film lesson, or for further inquiry or investigation, as appropriate.

The situation in which the problem is introduced is typical of that in which the audience has been, is, or will be confronted, and the characters in the situation are typical of the people in the audience. The people in the film look like members of the audience, they dress like them, act like them, and talk like them. They are neither highly cultured nor obviously uncouth.

Once the situation—the setting and the characters—has been identified and the problem has been raised in its natural setting, the film turns to the lesson to be taught. Thus the teaching is oriented in terms of the learner. The audience identifies itself with the problem through identification with the characters or the situation in which the problem arises. The teaching is approached from the point of view not of the person who has mastered the subject, but of the person who must learn the subject. The direction of the teaching is *from the audience* (the learners) *to the subject* (the thing to be learned).

When this relationship has been established, when the audience (the learners) identifies itself with the characters of the film and the situation in which these characters find themselves (the problem), then and only then is the explanation or exposition (the basic data) presented in the film. The subject is shown in terms of characteristic responses of a group or an individual who is going through the stumbling process of learning. The presentation of the subject-matter is unhurried. It unfolds in a natural way, sometimes through dramatization, sometimes through demonstration, sometimes through illustrated explanation, as appropriate, but always with a pace and a patience geared to an audience of learners, not to an audience of the learned.

This point of view—presentation of subject-matter in terms of the *way it is learned,* not in terms of its *mastery after it has been learned,* is one of the significant developments in teaching techniques of the Army training films. Hitherto, educational films approached the subject from the other end.

When the explanation is completed, the film often returns to the opening situation, to the same group in the same situation (or a similar group in a similar situation) with which the film opened.

Then follows a final, clinching summary, a review, a statement of the broad principles and the main points of the lesson. This review, this abstraction of main points, *follows* the experience from which the audience can, after having gone through it, abstract its major principles and main points.

In its later films, particularly the revised series on map reading, military training films approached an element of teaching technique which, when further developed, promises to transform educational films. Typical of most military training films and of most prewar educational films is the practice of ending a film with a note of finality—as if the subject were completely disposed of when the end title appears. In movies produced for the theater and in Army training films, this sense of finality, this slamming closed the covers of the book, so to speak, is heightened by a slow fade-out of the final scene, the slow fade-in of *The End* title, and the upsurge and *finale* movement of the music. It is for this reason, perhaps, that the movie audience, whether in the school, the training camp, or the theater, sits silent when the lights go up. In the classroom the teacher asks for questions. They are slow in coming. The teacher or instructor tries to start a discussion; the audience response is sluggish. In the theater, the audience starts to rustle and there is a slow movement toward the door. The theater manager hovers in the lobby eavesdropping, but he hears only terse expressions of approval or disapproval—more often, merely silence. All problems had been resolved in the film.

This may be good entertainment but it is poor education. An audience seeking entertainment wants, for a few hours, to have its cake and eat it too. It satisfies its yearnings and avoids its responsibilities. But not so with education. On the contrary, to be real, education leads always forward. It is never done. To have done with, is to halt education. So, too, with educational films. To close the subject in the film is to block the very thing the film can do best—stimulate the pursuit of the subject beyond the narrow specificity of the film, arouse an intellectual and emotional urge for greater possession, greater mastery.

The slow realization that an educational film, whether for

school, college, church, forum, or training camp, should lead the audience on, not close the doors of intellectual, moral, or emotional development, emerged only in a relatively few of the Army's films, and then without much force. In one of the films in the revised map-reading film series, for instance, the film closes with the group of soldiers who had, in the opening sequences, wagered that one of their number could not find his way back to camp with compass and map. As they reluctantly pay off their wager to their returned comrade, whom they had driven out blindfolded several miles from camp and left alone with compass and map in open fields and rolling wooded terrain, each looks at the other with unbelief. Slowly, questioningly, their eyes follow him as he moves away, counting his collected bets. The audience identifies with this watching, doubting group. They (the audience) share its doubts. They, too, still doubt that the job can be done until they try it themselves. The challenge of the uncertain in face of performance remains with the audience. The tension of this challenge can be discharged only when the members of the audience, like their fellow GI's on the screen, actually go out with map and compass, find their way back by means of these two instruments, following the instructions that had been given in the film and that had been followed by the bet-collecting soldier with his map and compass. Interestingly enough, an off-stage commentator is used throughout the film to give instructions to the GI character when he is having difficulty in using his map and compass to find his way back to camp, to review the lessons taught in previous films, to show their application to the problem at hand. Throughout the film the audience tends to identify itself with this voice, not with the soldier who is following the directions of the voice. During the film showing, each member of the audience is the sideline coach. In the end, each member of the audience in turn identifies with the soldiers who had only watched and waited. The film audience feels that same urge to do that an audience feels at an athletic event—it wants to get in the game and carry the ball. The film closes, not with the finality of a completed job, but with the challenge to go and try it yourself.

This principle of leaving the audience with unanswered questions, with the necessity to know more, to see more, or to do more, is not new. It is used by movies, radio, newspapers, and magazines as a sure-fire device to enlist regularly recurring audiences. Children and adults go back to the movies to see the next episode in the serial. Housewives tune in on the network to get the next episode in the soap operas. Children hug the radio before supper for the next exciting episode of the breakfast cereals. Adults vie with children for the first chance at the newspaper to follow the adventures of their favorite comic-strip characters. The principle of suspense is so well known that its obviousness escapes attention in education.

The device of suspense seldom fails—the pause of a critical moment leaving the audience on the verge but not in possession of the next step, the solution to the problem, the answer to the question. Teachers who omit sections from films, or cut the film off before the end, know the state of continued interest of their children in the part omitted. For months they seek the answer.

The principle of the unresolved action under strong, basic motivation, lies at the heart of modern radio and magazine advertising. Those who complain of the high pressure, of the exciting techniques of radio, newspaper, magazine, and billboard advertising fail to realize that there is only one reason why these techniques are used. *They work.* They pay off. They sell the product. There is one simple public answer to the excesses of modern advertising—the buyers' strike until the advertising methods are changed. Yet this answer is seldom given until the excesses become revolting.

There is little danger that educators and those who produce educational materials will resort to the excesses of modern advertising and salesmanship. But in avoiding excesses they may continue to ignore the principles upon which advertising and salesmanship operate—fundamental psychological principles by which people are interested and their appetites are aroused and their actions are motivated. Because these principles are applied in advertising with nauseating excess, or because they are sometimes used to exploit the public by creating demands for things they do not need and

cannot afford, is no reason for educators to continue in bland indifference to the application of these basic principles to teaching situations. Educators and advertisers are engaged in professions which have, as their goal, the influence and change of human behavior. The same principles of human behavior are basic to both education and advertising, although the specific goals sought by each differ, and may be contradictory.

One of the significant advances in teaching technique in war-training films may be described as "leaving the film open at the end." Instead of a final sequence which closes the film with throttling finality, the truly educational film will turn the subject to the audience, leaving the audience not fully satisfied, but with questions it must answer for itself, with a challenge to further inquiry, or with the obligation to "go and do in like manner." With entertainment, the audience demands action from the film. With education, the film demands action from the audience.

DEMONSTRATION TEACHING IN FILMS

Another innovation in teaching technique in Army training films is the deliberate use of the teacher as a main character, and the use of a classroom teaching situation as the setting for all action in the film. One reason that this technique has not been used in school and college films can be ascribed to the scrupulous avoidance of anything in educational films that might feed the fear that films will replace the teacher. No responsible producer of educational films and no responsible educator who has introduced educational films into the teaching program of schools and colleges has ever entertained the notion that with the production and use of such films the services of the classroom teacher can be dispensed with. Yet, this unholy fear, born of the insecurity which comes from basic ignorance of the rôle of films in an educational program, still echoes in current educational literature, often from sources that should know better. A more real basis of anxiety is not that motion pictures will replace teachers, but that that teachers

(1) will fail to use educational films, and (2) will not use them to best advantage when they use them at all.

The use of the teacher-and-classroom film technique was applied by the Army to technical subjects, and to the parts of those subjects in which instructors encountered difficulty in getting the lesson across. Typical of this kind of treatment is the Army's training film on *Ohm's Law*. It opens in a military classroom with the instructor finishing his lecture-demonstration of Ohm's law. He winds up with the time-honored "Any questions?" and is met with blank silence of the class. No questions. "Dis-*missed*" and out they go, with the dulled expression of a group of students who have listened but not learned. That is, all but one files out. He hesitates, trying to work up courage to answer the instructor's question honestly. Finally, "Look Sarge, I didn't get it." There follows an exceptionally able and lucid teaching presentation of the subject of Ohm's law. With question and answer from pupil and instructor, with blackboard demonstration and working out of the formulae by instructor and pupil, and with demonstration of current, amperes, and volts variation on simple electrical laboratory equipment, Ohm's law is taught in the film with a personal intimacy and the thrill of intellectual searching and grasping that marks all effective learning and teaching.

With this kind of teaching film, and for that matter, with all teaching films, more preparation, more planning, more rehearsing, more thought, more timing, more selection of just the right delivery goes into the ten, twenty, or thirty minutes of instructional time occupied by the film than in almost any other comparable period of teaching. This kind of teaching film does not replace the teacher. It puts at the teacher's disposal the finished presentation which is the result, not of a few minutes or a few hours of preparation, but of weeks and months of preparation by the finest subject-matter specialist and the finest talent of film making and film teaching.

Interestingly enough, this kind of film is perhaps the least expensive to make. It requires only a small interior set—the space between two intersecting walls—and only simple lighting. It re-

quires a minimum of characters, and the dialogue calls for no great peaks in emotional acting or voice range. It is a simple, inexpensive, and relatively easy technique to apply to technical subjects in the curriculum to teach those elements which chronically give trouble. It can be used in teaching arithmetic, art, handwriting, spelling, geographic concepts, etc., with ease and with effectiveness.

OBJECTIVES AND PLACEMENT

Behind the variety and effectiveness of teaching techniques developed in Army training films was a clear conception of why each film was made—what it was intended to contribute to the training of the soldier. The "Why We Fight" films, for instance, were planned to develop specific attitudes toward and understanding of the nature of America's allies and her enemies, Germany's plans for world conquest, the course and direction of events leading to the war, and the heroic struggles of our allies in holding back the Nazi forces. The "Fighting Men Series" were intended to reinforce the values which govern the conduct of the individual soldier, to build self-confidence in his ability to cope with the armor and weapons of modern war, and to develop an understanding and control of strong and primitive emotions that are aroused in combat. Information films were designed to develop a sense of playing on a winning team—a team that was well equipped and well coached, and that was performing on many fronts with credit to itself and its country. Training films were intended to teach specific skills, or specific attitudes, or specific understandings, depending on the subject covered. Behind each film was a clear concept of the audience to whom it was to be shown, at what stage it was to be used in the training program, and what results in behavior (intellectual, emotional, physical, or a configuration of all three) it was intended to produce. Thus, in films for the military training program, and the naval and industrial training programs as well, there was *clear and specific definition* of (1) educational objectives and (2) placement in the curriculum.

In a previous chapter, it was pointed out that in prewar educa-

tional films clear and specific definitions of objectives and curriculum placement were not so apparent. Lack of such definitions resulted in a poverty of development in techniques of teaching in educational films. Part of the reason for this lack is the variation in the curricula of schools and colleges as well as the belief that it was necessary to make films to fit all curricula. Education is a local affair and communities brook no dictation in school matters. But local variation in the curriculum is more of an excuse than a reason for fuzzy thinking about objectives, and the placement of a film in the curriculum. Some consideration must be given to each of these in order to make a film at all. The difficulty has been that the proper kind of consideration has not been given to the questions (1) for whom, and (2) to what purpose?

These pointedly simple questions cannot, or at least should not, be answered with educational neutrality. For objectives must not only be clear; they must be good; they must have meaning and value in relation to the good life in a democratic society. The question, then, is not merely whether the objectives of the film are clear, but whether they are important to the goals of the modern curriculum. Assuming that they do, the question arises whether the techniques in the film—the dramatic, narrative, or expository treatment, the casting and acting, the settings, the selection, development and pacing of scenes and sequences, the simplicity or complexity of subject-matter coverage, the commentary and dialogue, motivating, summarizing, and challenging elements of the film structure —whether all these are appropriate to the development of the desired responses of students of a specific maturity level at a specific stage in their educational program.

One need only contrast the general objectives of the Army's orientation, information, and training films and the specific attitudes, moral values, emotional controls, behavior patterns, understandings, and skills that war films were intended to develop, with the general and specific objectives of films produced for classroom use before the war to realize how much classroom films have been bound up in an academic strait-jacket.

Educators talk and write about educational objectives with con-

siderable fluency, but too frequently there is little apparent relationship between the objectives set forth in curriculum publications, courses of study, or units of teaching, and the actual planning, development, and use of educational materials and procedures so as to achieve these objectives. In the daily activity of the curriculum, and in the curriculum materials prepared for use in this activity, there has been a heavy-handed emphasis on facts and factual learning. The relation of these facts to the development of appreciations, broad concepts and understandings, mental abilities and skills, social attitudes, moral values, and to decisions, choices and actions of daily living, is seldom evident.

Educational films have been produced on the assumption that they were to be used by the ideal teacher under ideal teaching circumstances. For the most part, they present bare facts, omitting any interpretation of these facts in such a way as to relate them to broad objectives. It has evidently been assumed by educational film makers that interpretation and interrelationships are to be developed by the teacher and by means of other teaching materials.

There is little substantial evidence to support the following four assumptions regarding methods of use upon which pre-war educational film producers have based their film treatments:

(1) "There will be proper placement of the film in the curriculum." The evidence indicates that films are frequently used with little regard to grade placement. The average range of grade placement of films is seven grades, and this range is frequently as high as fifteen grades.

(2) "The film will be used at the proper time." Films are frequently used with little relationship to the course of study, the unit, or the lesson to which they apply. A check of film usage in schools indicates that for every showing of one or two sound films to one or two classes, there are many more showings of three or more films to three or more classes in the same assembly at the same time.

(3) "The audience will be properly prepared for the film showing." The fallacy of this assumption is demonstrated by the fact that one of the leading producers of educational films as recently

as 1945, found it necessary (or at least desirable) to produce a film which will demonstrate to teachers the need for and techniques by by which the purpose of the film showing becomes evident, the audience is properly motivated prior to the screening, and audience observation is efficiently directed.

(4) "The film will be properly followed up in subsequent classroom activities." This same film on educational use of film devoted equal attention to discussion, to interpretation, to relating the film content to broader curriculum objectives, and to stimulating further inquiry, use of other educational materials, demonstrations, etc., as appropriate.

From many years of experience in trying to "sell" motion pictures to the schools and to improve their use in the curriculum, it is increasingly evident that effective use of educational films originates in the professional competence of the producer as much as in the professional competence of the teacher, and that progress in use of films may be expected when they are made so as to satisfy the practical requirements of their effective educational *use under typical classroom conditions*. Some of the ways that this can be successfully accomplished have been demonstrated in films produced for the war-training program.

COSTS

It is inappropriate to close this brief discussion of teaching techniques in educational films without at least recognizing the practical problem of cost, even though it is not in the realm of this report to try to offer a financial solution.

The production of films discussed throughout this and the preceding chapters involves large capital outlay. The producer asks, "Where is the market that will absorb the cost and enable me to keep in business?" The school treasurer asks, "Where am I going to get the money to buy all these projectors and to buy all these films?"

Improvement in distribution methods and methods of utilization will be discussed in the next two chapters. These affect market-

ing and purchasing. There are, however, four general considerations of cost that can be quickly summarized

1. Not all the films discussed are expensive to make. The teacher-classroom type can be made quickly and cheaply. This kind of film is far from the whole answer to the needs for educational films, but for the producer it is a point of departure.

2. A careful study of the market, of *important* curriculum developments in schools, colleges, and adult education, and of those subjects which give greatest difficulty to teachers will save the producer of educational films many bad mistakes. Good market research in film production is most urgent, and will be worth much more than its cost.

3. Some films have markets in addition to schools. The Army training-film program was an adult educational film program. There are large and awakening adult education activities in which films can be used. It is not beyond possibility that the adult field will soon provide a large market for educational films.

4. A mass market results in a lower price both of films and projectors. One of the reasons that films and projectors are relatively expensive is that the educational market has been so small. A vicious cycle has thus resulted in which educators refrain from purchasing films and equipment until prices are reduced, and manufacturers and film producers cannot reduce unit costs until the market expands. This cycle must be broken by the consumer. Projector manufacturers can help in this by production of lighter and less expensive projectors, thus opening a wider market for educational films.

6

DISTRIBUTION AND FILM LIBRARY SERVICE

MUCH OF THE EFFORT to improve the quality of educational film use, presently directed at the teacher, is *wastefully misdirected* unless channels of film and equipment supply are organized and administered so as to assure the availability and proper projection of (1) the right films, (2) when they are needed and (3) as long as they are needed.

It is difficult to develop effective use of films in education—the systematic use of films as teaching materials on a par with books, maps, posters, sand tables, models, dioramas, classroom laboratories, field trips, community studies, etc.—until there is a rich supply of both films and equipment and an almost magic simplicity to their physical use. Common sense warns against anticipating that educational films will be more than trivial incidents in American education until the good results of film use are more clearly evident to those least favorably disposed to this use; for such educators are chiefly impressed by the time, the effort, and the mental hazards that movies involve. If film distribution and film library services are not organized and operated simply and efficiently, films will continue to flit around the periphery of the educational scene, used primarily as fill-ins for assembly periods and as occasional "lifts" to break the monotony of classroom routine.

The phenomenal development in the use of films in the Army training program was due no less to the high degree of efficiency developed in the film and equipment distribution system of the Signal Corps' Army Pictorial Service than to the high standards of technical and teaching qualities of the films themselves. It is probably no exaggeration to state that the Army Pictorial Service was unique among war-training agencies in the extensiveness and efficiency of the training-film distribution system it organized and supervised and in the service provided to the field agencies for whose use the films were produced.

The essentials of this system are basic also to the development of a system of film distribution and film library services for education: (1) that distribution be organized as a network, (2) that it be given professional direction, (3) that efficient operating procedures be developed, and (4) that adequate physical facilities and personnel be provided to carry on.

DISTRIBUTION NETWORK

It was characteristic of the film distribution systems of the various branches of the armed services that each was organized in a *network* which covered the entire country, and that this network was duplicated in each overseas theater where American troops or naval units were deployed. In the military and naval distribution systems there was for each, one central agency charged with supply of all films, equipment, and projectors. In each theater of operation, service command, or naval district, a similar agency gave direct service to installations within the command area, and on all large posts there was a local agency which supplied all military or naval units with film service. Thus, one central film supply agency served a Central Film Library in each theater, service command, or naval district, and these, in turn, served the film libraries of local posts, camps, or stations. The film library or training-aids section on the post served the local consumer—the instructor and the troops. Under this system, any training officer could obtain any film he needed through the service chain stemming out of one central

agency of supply. In the case of the Army, this central supply agency was the Signal Corps Photographic Center, Long Island City, New York.

There is need for a network of film distribution for education as well as for military training. Without such a network in each state it is folly to pretend that any systematic provision can be made to supply the right films at the right times for as long as needed by all teachers in all schools and colleges within any given state.

A network of education film distribution may be organized on a state basis, or it may conceivably be set up on a regional basis for sparsely populated states which group naturally into a geographic region served by a transportation network. The functions of film supply that were provided by the Central Film Library of the Service Command can be provided by a Central Film Library of a state, and the same functions that were performed by the local post film library can be provided by city or county school film libraries. The Central Film Libraries of the Army's Service Commands maintained a complete stock of all films applicable to troop training within the Service Command. They served (1) as a reserve library upon which all local film libraries could draw such films as were needed over and above the normal stock they carried for local troop training, information, or orientation, and (2) as a circulating library for those troop units throughout the Service Command which were not stationed on large posts having local film library facilities. Applied to the educational system within any state, this means that one central agency be established (1) to supply films and other materials of group instruction to those local educational units whose size and compactness do not justify the expense of establishing and maintaining a local library of basic and recurringly used films and related materials; and (2) to supplement the supply of these materials by local educational units whose size and compactness justify the establishment of local libraries. As a corollary, it means that local libraries of *basic* films and related materials be established by each educational unit (city or county) which embraces an appreciable number of similar schools within a limited geographical area.

In general, the educational film distribution system in the United States has not developed in network pattern. In the eastern states, school systems in the large cities have developed their local film libraries in varying degrees of existence and completeness, but there has been only sporadic development of central film library facilities either by state departments of education or by state university extension systems except in the southeastern states. In the Middle West there has been extensive development of central film library facilities by state university extension divisions, but local film libraries remain undeveloped. In the South the development of central film library facilities was accelerated before the war but the local film library facilities remain retarded. In the Far West there has been a development of both central and local facilities, but this development has not been uniform either among or within the states. Individual exceptions can be found to each of these general tendencies.

Two interesting and significant developments may be forecasts of future patterns of networks of educational film distribution. In Ohio, where a central film library serving all educational institutions of the state has operated for many years in the State Department of Education, there has been an acceleration of local film library development among the cities of the state, and recently there has been a decentralization of film supply from the central film library to county film libraries serving rural schools. This development resulted from two factors: (1) the consistent encouragement of and assistance in local film library development by the director of the state film library, and (2) the extensive program of professional education and promotion conducted by the Ohio State University. In Ohio, establishment of local film libraries by city school systems has not apparently reduced the function of the state's central film library. On the contrary, it has tended to increase it. In general, the school systems which have established their own libraries of basic films have, after such establishment, *increased* their use of the central film library resources. Local film libraries do not displace a central film library. They increase the volume and the area of its services, for film use breeds film use,

and the possibilities of increased film use is as yet inexhaustible. The central film library in Ohio ships more educational films to the schools of the state than all the theatrical film exchanges in the state ship entertainment films to all movie houses of the state. The educational film service is free to educational institutions. The only costs are transportation and insurance.

In Virginia a network of educational film distribution has been established in a somewhat different pattern but with the same end in view: accessibility of educational films to all schools. Instead of centralizing the supply of films both for primary supply to rural schools and supplementary supply to city schools, the Department of Public Education of Virginia has established a number of regional film libraries to provide film service to the schools of those regions, and has reserved to the central film library the function of supplying those additional films of seasonal or special interest only. This, in effect, decentralizes the function of the central film library to a number of regional libraries, strategically located in teacher education institutions throughout the commonwealth. Every encouragement is given to local school systems, both county and municipal, to establish their own film library facilities.

Another unique and progressive feature of Virginia's system is that neither in name or in use are films considered as being other than teaching materials. By name, there are no *film libraries* in the Virginia educational system. Instead there are *bureaus of teaching materials*. In the use of this nomenclature, Virginia follows more closely the pattern of the Navy Department rather than that of the Army. The Army had film libraries. The Navy had Training Aids Sections. They both amounted to somewhat the same thing, but the Navy's Training Aids Sections distributed a *wider* variety of training materials than did the Army's film libraries. In general, the Army's film libraries were operated more like film exchanges than like bureaus of teaching materials in that films and projectors were *the* major commodity. In Navy Training Aids Sections, films were only *a* major commodity.

The extent to which the network of film distribution should extend beyond the film library of the local school system or uni-

versity will receive increasing attention in the future. This is particularly true in large metropolitan areas, where there are hundreds of schools located among densely populated areas. The distribution network of such a metropolitan center may require the same kind of pyramidal organization of central film library and area libraries serving sections of the city as has been sketched for a state.

The cost of supplying and maintaining area or district film libraries within a large city school system and individual film libraries in large high schools must be weighed against the educational advantages accruing from such libraries. From a supply point of view, it is easier to obtain maximum print utilization when all prints are centralized under one agency of supply rather than when they are dispersed among several. However, from a psychological point of view the use of several film library sources, each convenient to a large number of teachers and schools, may outweigh the factor of less-than-maximum print utilization per individual print. Greater accessibility to films, localized coordination and promotion, greater opportunity for teachers to preview new film materials, etc., may justify a network of film libraries in metropolitan centers, rather than a single central source of all films and related materials.

PROFESSIONAL DIRECTION

Unless there is professional direction at the top, a film distribution and film library system can easily remain a supply service to a school, rather than become a professional influence in the curriculum. The planning, development, and supervision of training film distribution and film library service of the Army Pictorial Service, as of the Navy, was placed in the hands of professional educators, commissioned by the Army for the purpose of getting training films used effectively in the training program. As a result, the development of training film distribution and film library service was dominated in the beginning and throughout the greater part of the war by the idea that the system and the service

operate for the sole purpose of facilitating the training of the troop units, rather than the other way round. Any educational film distribution system that is conceived and operated primarily in terms of a motion picture exchange rather than in terms of the effective use of educational materials in the curriculum is likely to perpetuate the segregation of films from other materials of instruction. As a result, the concept of movies-in-the-school will prevail over that of films-in-the-curriculum.

The development in Virginia of bureaus of teaching materials is significant of a desirable trend to bring teaching materials together, to conceive of educational films as teaching materials, and to organize their distribution in such a way as to facilitate their effective use in the curriculum. The teacher education institutions of Virginia which provide film distribution services are also charged with developing the kinds of professional services which bring about better curriculum use. The distribution of films and related teaching materials has been *professionalized* under the Virginia plan.

Getting the right films into the hands of teachers when they are needed and for as long as they are needed is not simply a supply function. It requires professional direction—coordination with all curriculum divisions of the school system, active cooperation with all curriculum and course-of-study committees, the supply of informational materials in such form as to facilitate the effective use of available films in the classroom, and advising with teachers and adult education groups on the availability of materials and most effective ways of correlating them with other curriculum activities. The details of routine operation of a film library or a film distribution system, patching films and keeping projectors in running condition, previewing and purchasing new films or replacing damaged old ones, bringing catalogues up to date, and performing the many extra-curricular services of arranging after-school shows, advising on how to get a new radio or a second-hand camera with or without a discount, or photographing in color the splendid pageant at such-and-such a school the next morning—all of these extremely important to the reputation and public relations of the

visual education department—can easily obscure the educational end for which most of these services should be rendered. A visual education department can easily slip into the inviting but sluggish groove of a mechanical service department, and the means thus become more important than the ends. The volume of service then assumes greater significance, as a measure of the division's usefulness, than the educational increment resulting from the use of the materials in the curriculum.

The effective use of films in the curriculum will not materially improve without (1) renewed and determined accent on the professional nature of a materials of instruction service, and (2) a broadening concept of functions to include a wide range of instructional materials other than motion pictures. Films and film strips, glass slides and 2″ x 2″ slides, models and dioramas, traveling exhibits, posters, recordings, and transcriptions, all of these are teaching materials intended for group rather than for individual instruction, and many of them are too expensive or too infrequently used for permanent supply to each individual school or individual teacher. They belong in a bureau or center of teaching materials for loan to educational agencies, so that teaching materials that complement each other are supplied by a single agency. Without such coordination of supply, all these materials remain hard-to-get, and, being hard-to-get, they are hard to use.

EFFICIENT OPERATING PROCEDURES

A film library or a bureau of teaching materials must be efficiently operated, otherwise there will be continual breakdown in the supply of educational materials. Inefficient procedures also mean more operations than necessary, more people than are required, more space, furniture, and equipment than are needed to do the job. All these things were scarce commodities during the war. Manpower was needed for combat, building materials for barracks, equipment for radio and radar. There was no time for inefficiency of supply or timidity in professional leadership.

Efficient operating procedures apply to four major activities of a

film library or film distribution system: (1) methods of film circulation, (2) the booking system, (3) central control of films and equipment, and (4) systematic inspection and maintenance of both films and equipment.

METHODS OF CIRCULATION

Films may be circulated to users in either of two ways. (1) They may be loaned directly to a user for a specific period of time designated by the user, and returned to the film library by the user at the expiration of the loan period. This is called spot booking. It is the kind of film circulation most frequently used by educational film libraries. A school requests a film for use at a certain date. The film is delivered from the film library for use on that date. After use it is returned to the film library and is again available for delivery to the next user under the same conditions. Thus the film shuttles back and forth between the film library and the user. This method of circulation is, according to entertainment film criteria, extremely inefficient. The period during which the film is not used is likely to be much greater than the period during which it is used.

(2) The second method of circulating films is, from a *commercial entertainment* standard, much more efficient. It involves the scheduling of a film to a number of users on prearranged dates. The film is shipped from the film exchange to the first user, who, after its exhibition on a prearranged date or within prearranged dates, ships the film to the next user, instead of back to the film exchange. This shipping schedule continues from unit to unit without return of the film to the film exchange until the "circuit" is completed. Thus, a single print of a given film does trojan service. It steadily moves about, picks up its business in continuous motion, and comes home only after it has made its complete round. A few prints can thus take care of a large volume of trade. First they go to the downtown theaters, moving from city to city. Then they start the tour of the neighborhood theaters, moving from city to city. Months later, they wind up on tour of the rural movie

houses open only a few nights a week or in the blighted areas of the large cities.

These two systems of circulation are discussed here for two reasons. First, few *educational film libraries* have recognized that the circuit method of distribution is *applicable* at all to educational films and educational film uses, and, consequently, this method has been ignored despite its obvious efficiency in terms of greatest use of the fewest number of prints. Secondly, entertainment film distributors have, on the whole, failed to comprehend that the circuit method of film distribution is completely inapplicable to the circulation of educational films which have specific curriculum purposes and whose value to general audiences is extremeley limited. As a result there is a temptation for theatrical film distributors to look down their noses at the spot-booking methods of educational film libraries, and to regard educational film distribution methods as hopelessly inefficient.

Actually, the circuit method of distribution is applicable to educational films supplied for general auditorium purposes, where (a) the *film* is the important thing, and (b) the use of films can be regularly scheduled throughout the year. For instance, high schools in a given area may have regular assembly programs once or several times a month throughout the school year. As a part of that assembly program of the year, these schools may wish to schedule a film showing once a month. It may make little difference whether Film A is shown in September or in November, or whether Film B is shown in October or January, so long as both Film A and Film B have general educational value and are appropriate to assembly or auditorium use. With the proper kind of film on a topic of general interest, the assembly program can be built around the film. Films carefully selected for this purpose can be programmed and circuited to a number of schools in succession. In this way, a few prints will render maximum service to a large number of schools. Like it or not, assembly programs are a part of the school curriculum. They can greatly enrich the school program and contribute to high morale among teachers and student body when they are planned with imagination and con-

ducted with enthusiasm, with good materials, and with at least a modicum of showmanship. Films have much to contribute to such programs when they are carefully selected and their use is intelligently planned. Film circuits serve this educational need at low cost to distributor and user.

Any attempt to circuit films intended for specific classroom use is little less than disastrous. In fact, any attempt to operate educational film circuits except under ideal conditions of thoroughly planned and educationally worth-while assembly use is disastrous, since it involves the use of films in a way completely contrary to sound educational theory and practice. Film circuits reinforce the thing that must be rooted out of school use of films—the unplanned and unselected use of an assortment of ill-adapted films in an assembly of pupils with no advance preparation and no follow-up activities. These films made for and used as an integral part of the daily work of the individual class, must be supplied when the film is needed by the class. The film library thus circulates these films to correspond specifically to these needs. Circuits do not work for classroom films.

EFFICIENT BOOKING PROCEDURES

The circulation of films to schools must be foolproof, otherwise, three things can happen: (a) the right film will arrive at the wrong time, (b) the wrong film will arrive at the right time, (c) no film will arrive. In any of these cases the use of films as basic teaching materials remains out of physical cause a purely speculative subject. And these three things can and do happen when the booking system of a film library, or of a bureau of teaching materials, is not set up and operated in an efficient manner. They happen on occasion even under the most efficient booking systems, because systems do not operate without people to operate them, and wherever there are people there is a margin of error. A booking system must therefore be set up so as to minimize (1) the possibility of error in operation, and (2) the number of clerical operations in administration.

In the rapidly expanding days of the Army training program there were as many booking systems as there were film libraries, none of them adequate to the expansion of the training-film program. More often than not, there was an "off-the-shelf" system. The film was either on the shelf (or floor) or it wasn't, and with very little ingenuity the person in charge of the film library could fumble through the cans of films to find the one requested. If the requested film was on the shelf, the request was filled. If it was on loan, the request was not filled. After two or three unsuccessful attempts to obtain the film he wanted at the time he wanted it, the training officer took a dim view of motion pictures as training materials, not because he doubted their value but because he despaired of their availability.

One of the first jobs undertaken by those officers charged with improving the use of motion pictures in the Army training program was to develop, test, and standardize a booking system so as to assure the reservation, delivery, return, and re-issue of films when and where they were requested by training officers. Otherwise, either there would be enormous waste of film stock due to inefficient methods of supply, or the whole program of film utilization would bog down in the confusion and uncertainty of the delivery. *It was as silly then as it is now to launch a campaign for the wider and better use of teaching materials without first taking the necessary steps to make sure that these materials are delivered as ordered.* To guarantee the supply of films, an efficient operating procedure for ordering, reserving, delivering, and assuring the scheduled return of the requested materials is essential.

The system used by the Army for expeditious handling of requests for materials was adapted from that of the commercial motion picture exchanges. The large booking ledgers, containing both master booking and monthly booking sheets, and the print record card, containing a case history of the use of every print, were utilized with very little adaptation. The ordering and delivery forms were especially designed to accommodate requests for both films and projection equipment from units both on and off Army posts. This system is not necessarily adapted to educa-

tional film libraries, except in those large central film libraries serving an entire state or a group of states. The booking ledgers are large and heavy. For ease of physical handling, it is almost necessary to use an especially designed ledger rack, consisting of shelves for each ledger, and a sloping top on which to rest the ledger in immediate use. The construction of such equipment is relatively simple on a large Army post since there is generally a carpenter shop, a supply of construction materials, and the necessary skilled personnel which can build to any blueprint design. Without these facilities at its beck and call the educational film library will find the Army's booking system clumsy to handle.

An efficient booking system in any film library or network of film libraries will meet the following six general criteria:

1. The information on available films, number of copies, reservations, delivery and return dates, should be systematically recorded on paper, and not simply in the booker's mind. Otherwise, the successful operation of the system is dependent on the presence and the memory of a particular person whose absence results in a breakdown of the system.

2. The movement of all films in and out of the library should be controlled by the booking ledger or card, not by an on-or-off-the-shelf system. All deliveries of films must follow from the booking arrangements, *not govern them.* The actual presence or absence of any film in the library should never be the subject of daily inventory of the physical prints on the library shelves but should correspond completely to and be governed entirely by inventory and the commitments recorded on the booking sheet or card.

3. The complete present and future schedule of every print of every film should be visible at a glance—it must be set up in calendar form. A booking sheet or card is subject to many errors in delivery of films unless reservations and delivery are indicated graphically in calendar form. The longer the calendar period that can be indicated on the booking sheet or card, the greater the certainty of reservation and delivery. Using units can then plan

their program of film usage in advance with assurance that the materials they need will be delivered when needed.

4. The number of forms should be reduced to an absolute minimum. The fewer, the better. Each should carry a maximum of information and directions, thus reducing the number of clerical operations involved. The number of forms required for efficient operation of film or teaching materials can be reduced to a minimum by the following consolidations:

a. If a booking *card* is used instead of a booking *ledger*, the booking card serves the additional purpose of a print record card, thus eliminating the necessity of maintaining a separate print record card. The booking card can be designed so as to provide a complete record of use of every print of every subject, including the frequency use, the length of time it was used, and the name and the type of using organization. At the end of the year, or periodically within it, this information can be tabulated from the booking card. These data can then be analyzed in terms both of efficient utilization of available print stock and of extent of utilization among different kinds of using organizations. On the basis of this analysis it can be determined whether additional prints are needed, whether the film is reaching those agencies whose needs it best serves, or whether it is being used by agencies whose needs it does not serve or serves poorly. Furthermore, it will be possible to acquire additional prints of heavily booked subjects, to develop special promotion campaigns to stimulate use of good but infrequently used films, and to identify subjects with respect to which additional materials need to be produced or purchased. These data are essential to the development of a film production program that meets educational needs, and to the development of a utilization program which makes best use of the materials available.

b. The loan request form on which requests for films are made by schools can also serve as delivery or tally-out and tally-in form by the stock and shipping section of the film library, and as a confirmation form to be returned to the school, indicating whether the films and other materials will be delivered as requested. If the form is designed so that the requesting agency fills in the

name and address of the school on a part of the page which matches the window of a window envelope and submits its request in duplicate, one copy of the form can be returned to the school with the requested materials checked as "reserved" or as "unavailable." Under this procedure, the school is immediately and exactly informed on the extent to which the films requested will be delivered, and can thus plan for film utilization without depending on vagaries of supply.

The use of the window envelope for returning the checked film request to the school eliminates a time-consuming clerical operation in the film library. The second copy of the checked form, retained by the film library, then serves as a delivery order or a tally-out form, which is forwarded by the booker to the stock and delivery section for shipment of the requested films on the appropriate date. Upon shipment of the films, the form can then be filed by the stock and delivery section under the date of specified return of the films, and thus serve as a tally-in form for the prompt and complete return of the film and other materials to the film library by the school. In this way, one form serves multiple purposes and eliminates a number of intermediate forms which would otherwise be required for booking, confirmation, delivery, and return of materials.

5. Records and reports should be compiled and maintained only when necessary. A film inspection record on which the condition of every print is noted after every use consumes time and energy. It is of value only when *damage* is noted. A record of film condition is necessary, therefore, only in case of damage, and not as a routine of all film inspection. Similarly, a record of film return is useful only when there is a failure in the scheduled return of a film. It should be made out immediately—but only when films or other materials fail to return on schedule, and not as a routine report of the stock and delivery section.

Similarly, attendance reports, film evaluations, and other reports that are sometimes regularly requested from teachers should be eliminated unless they are used for systematic compilation and analysis by the film library or some other professional educational

agency. This does not mean that attendance reports and film evaluations be eliminated *as such.* It does mean that they should be eliminated unless they will be used by the requesting agency, and it means that when requested, they be gathered on a sampling rather than a systematic routine basis. Elimination of these *routine* records and reports in no way handicaps film library operations. On the contrary, it reduces clerical operations, thus eliminating irksome detail operations by film users, reducing requirements for overhead operating personnel in a film library, and permitting expansion of activities without corresponding expansion of personnel requirements.

6. Clerical work should be distributed as widely as possible among the requesting agencies, to reduce clerical overhead in the film library. The use of standardized ordering forms submitted in duplicate by requesting agencies, does not increase the clerical work of the requesting agency, for some clerical activity is involved in any request submitted for films or other materials. More often than not, these requests are made in letter form. It takes more time to write a letter than to fill in a carefully designed order form. The use of a standardized order form may actually simplify clerical work in ordering films, and it definitely reduces the amount of clerical handling of the request by the film library. No additional personnel is required by a school to fill in a printed or mimeographed order form, but additional personnel is required at the film library if the requests are received in such a way as to call for the preparation of several supplementary forms in order to insure the supply of the films or other materials requested. While the use of standard film request forms requires that these forms be designed, printed, and supplied to users by the film library, printing or mimeographing are cheaper than clerical assistants and typewriters, desks, and office space.

These six criteria of a good records system make for more efficient operation of a film library. This, in turn, serves the dual purpose of decreasing the cost of distribution and of providing better service to film users.

CENTRAL CONTROL

Central control of films and equipment is a desirable feature of any film library or bureau of instructional materials serving a city or county school system or a university. Not only does central control provide for better maintenance of this equipment, but it fosters wider and more efficient utilization of available films and equipment among a large number of using organizations.

Central control of films and equipment, however, runs contrary to human nature. For the most part, it encounters the active opposition of those units who are already in permanent possession of their own projectors or who have built up their own film library, small though it may be, and are asked to surrender exclusive possession of films and equipment so that others may share in their use. These films and projectors may be put to work only infrequently by their possessors; often they gather dust in closets. But they *are* in the possessor's closet and they *are* available to the *possessor* for use if and when used. Surrender of these materials means loss of possession, and loss of possession seems to go against the grain of human nature. A school or a school or university department that is asked to give up its materials to a central organization often takes the attitude that "a bird in the hand is worth two in the bush," even though, upon reflection, everybody knows that birds belong in a bush and not in the hand.

This attitude can be overcome in a number of ways. It does not have to be overcome at all if it is not permitted to develop. Upon the establishment of a film library and the purchase of original projection equipment, the immediate centralization of control of projectors and films in the film library and their *loan* for an indefinite period rather than permanent *assignment* to schools sets the precedent of central control. The loan can be extended as more films and more projectors become available and as the need for extended loans can be demonstrated by the use records of individual schools. By making extended loan a function of the *extent* and the *effectiveness* of film use, the propensity of possessiveness

that lingers in every school and every department within a school, can be hitched to the goal of effective educational results.

It is easier to centralize control of existing films and equipment in a university than in a city school system. University departments derive their funds from a university budget, and each department depends on the university administration for its budget allocation. The funds used for purchase of films and equipment are, then, university funds and department equipment is for the most part university equipment. Centralization thus becomes an administrative device for better utilization of equipment purchased out of university funds. On the other hand, individual schools within a school system may have purchased a projector out of funds raised locally, and, hence, it is more difficult to centralize control over this equipment.

Centralization of control of films and equipment in a university or school system will be easier to achieve when it is made clear in advance to all departments surrendering materials to a central agency that (a) there will be no interruption in present rate and methods of use, (b) the equipment will be better maintained with less trouble to the department, and (c) each department will be better served with more materials and more equipment under a centralized system. It is a case of demonstrating that "Blessed are the meek, for they shall possess the earth."

Centralized control of films and projectors is a principle that can and should be applied to new purchase and supply. It can be applied to available supply presently dispersed among a number of school or university units, but its application is contingent upon wholehearted consent by the possessing units, obtained upon demonstration of better service to these units as well as to others. Loan of projectors to using units can become tantamount to permanent allocation where it can be demonstrated that the assignment of projectors for an indefinite period increases the effectiveness of film utilization.

Throughout this discussion the principle of centralization has been applied to both films and equipment. The immediate need is for its application to projection equipment, since films are gen-

erally controlled by the film library or division of visual education. Centralized control of films is discussed because it is anticipated that, within this generation, films will attain stature as basic teaching materials and that there will be need for the film libraries in large schools. *That large schools need their own film libraries does not mean that the same films are needed there throughout every month of the academic year.* The needs for films in individual schools are likely to vary from month to month, and hence the film subjects required to implement the curriculum of the school are likely to vary from month to month. Were basic film libraries to be established in the large schools, the number of prints required to stock the individual school libraries would be far in excess of the number required to circulate these films from a central source—since the films in a central source are mobile throughout the city, while the films in a school film library are mobile within the school only. It is far more efficient to fill the current film needs of the school film library from a central source. Films can be supplied to the individual school library for as long as needed within the school, and when the use of the film has been exhausted for the time being within a school, the prints are made available to other school libraries in the city on the same extended loan basis. The supply of films in the individual school film library thus remains fluid in terms of current needs, and the film supply of the central distributing agency is kept mobile in order to eliminate inefficient duplication of film supply.

The principle of centralization does not require that films and projectors actually remain in the physical *possession* of a central film library. It means that the *control* of films and projectors remain there in order to provide for optimum distribution and utilization, and variation in rate of use among various schools. Under efficient operating methods, the supply of both films and projectors to any school can be increased and decreased according to seasonal or program requirements.

Needs and usage will be the criteria by which it can be determined how many projectors are supplied to any school for any given period. Projector allocation according to number of pupils is a formula useful for computing over-all requirements, but it

cannot be substituted for actual needs and actual usage of any individual school. Otherwise the situation whereby films and equipment lie unused in one school while badly needed in another will be perpetuated.

SYSTEMATIC MAINTENANCE

Systematic inspection and maintenance of both films and equipment is the fourth essential of efficient operating procedures. Maintenance of both films and projectors begins with a program of *preventive maintenance*, and an adequate and well-operating program of preventive maintenance reduces damage and repair nearly to the point of replacement of parts or of original units, of either film or projector, due almost entirely to what the Army calls "normal wear and tear." Under such a program it is not unusual for projectors and films to continue in operation for five years or more. Long service of both materials and equipment, assuming that they do not become obsolete for their purposes, greatly reduces the cost of a program of educational motion pictures.

The greatest damage to films comes through faulty threading and faulty operation of the projector. Faulty threading and operation of the projector results from inadequate training in the operation and care of the projector, or careless administration and supervision after this training has been provided. Film maintenance, then, is largely a function of proper projection. Apart from routine details and operations—cleaning films, treating them with preservative materials, clear marking of white leaders for quick identification of films, re-winding so that the opening title and not the end title reaches the screen first, splicing tears, replacing damaged footage, replacing the proper film in the proper film container, and proper storing on racks—the maintenance of 16mm motion picture films can be identified almost completely with proper operation and maintenance of projectors. This does not mean that film maintenance requires little time or effort. Daily and careful attention in a film library is essential but it need be little more than a routine if steps are taken to establish an effective program of preventive maintenance and proper use of projectors.

A program of preventive maintenance of projectors involves three simple yet somewhat difficult procedures: (1) a program of operator training; (2) centralizing responsibility for care and operation under one authority in a school, church, etc., and (3) inspection and maintenance service for all projectors. Establishment of the first and third of these procedures is the responsibility of a division of visual education or a bureau of teaching materials when this central agency has *control* over the purchase and maintenance of projectors. In other situations, it is the responsibility of the purchaser to set up such a program either through his own facilities and resources or as a condition of the purchase of the equipment. The small college, small school system, individual schools, library, church, factory, etc., which purchase projectors can and should insist that the vendor provide (1) a training program in the care and use of the projector, and (2) maintenance service which will make periodic inspections of the purchased projector, clean and oil it, replace lamps, belts, etc., and repair or replace worn parts or assemblies, in order to maintain the projector in top operating condition at all times. This may be asking a great deal of the vendor, but it is a necessary service for the school or other agency undertaking to use motion pictures as basic materials in an educational program.

Another part of the maintenance picture that must be developed is the supply of repair parts to school districts or universities operating their own projector repair shops, and the establishment of projector repair shops *throughout the country* to perform both major and minor repairs for all other customers. A system of projector maintenance will have reached some resonable degree of essential service when either the film library which supplies the projectors to the schools, or the vendor who sells projectors to individual schools can not only maintain and repair, or provide for the repair of these projectors, but can also replace the projector during the time it is undergoing repair. In this way, the supply of a projector or projectors can be maintained on a constant level, *without loss of projector use during repair.* In the war years, while tires were being retreaded, automobiles were kept running by the loan of a set of tires by the retreading agency. Film pro-

grams can and should be kept running by a similar system of replacement during repair.

Insofar as the small educational unit is concerned, the problem is one of contracting and paying for a maintenance service. Insofar as the projector dealer is concerned, the problem is one of establishing and operating this service on a paying basis. This means that when a school, church, library, labor union, or industrial firm buys a projector, it must also buy a projector maintenance service, and must pay for this service over and above the purchase price of the projector. While this may increase the initial outlay for projection equipment, the value of the projector will likewise be increased since it will give better service longer. Since the only purpose of a projector is to show films, it is worthless when in the repair shop, or broken down in the school.

The operator training program, an essential part of a preventive maintenance program, is a larger job than appears on the surface. It cannot be done in an hour. In the Army training program, a minimum of six hours was required, and the norm was closer to ten. In some commands the training period ran as long as ten days and two weeks.

After one hour's instruction a teacher may conceivably manage to run a film. So many things can go wrong for the inadequately trained projectionist that several hours of training, spread over several days, are necessary before the operator gets the feeling that he is running the projector rather than that the projector is running him. A sound motion picture is two machines in one: a projector and a sound system. Operating a silent motion picture projector is relatively simple. The film is simply locked in two sprockets in order that it pass in front of the light at the right time. The lamp shines through the film and the lens focuses the projected picture on the screen. The film is drawn from one full reel to the sprockets, and it is strung from the sprockets to an empty reel. When sound is added to a silent projector, the film is simply run over a sound drum, and you operate the sound exactly as you operate your home radio (except that you do not need any dial for tuning in a station).

Simple as these procedures sound, it takes at least six hours to

explain them with penetrating clarity and to provide sufficient practice in their application to a 16mm sound motion picture projector. Any less instruction courts embarrassing breakdowns in front of the audience, and the return of damaged film to the film library. An educational film program cannot thrive on embarrassing moments for the teacher, nor can it afford persistent replacement of damaged films.

By centralizing responsibility for the care and operation of projection equipment, the over-all job of operator training and preventive maintenance can be highly simplified. Adequate training of one person from each school, church, library, etc., in procedures of operation and in the nature and techniques of periodic inspection and replacement of lamps, belts, etc., provides what the Army calls a "cadre" of an organization—the core of trained personnel. This cadre, in turn trains the squads. In a school, for example, the one trained teacher would train all other teachers and/or the student operators (whom we shall meet in the next chapter). Centralizing responsibility for the care of the projector in one key person—the coordinator we shall also meet in the next chapter—also provides for systematic cleaning, oiling, etc., which ordinarily are not done when no single designee is held responsible for the equipment. A few drops of oil in the right place at the right time save frozen bearings and a heavy repair bill.

One word of caution on preventive maintenance before closing the subject of efficient operating procedures: The projector maintenance program within any school or other using unit should remain entirely *preventive*. More damage is done to projectors by a screw-driver in the hands of a well-intentioned operator than by almost any other single cause.

ADEQUATE FACILITIES AND PERSONNEL

One of the problems in the Army's film program—that faces schools beginning or expanding their use of films—was to provide adequate physical facilities and trained personnel. It is obvious that these requirements will vary with the volume of activity.

There must be adequate provision of space for certain necessary operations of a film library, and the space must be laid out to provide both for the most efficient performance of these operations and for the easy in- and out-movement of both films and projectors. A minimum of 2,400 sq. ft. of floor space was advocated for an Army post film library. In this space there was provision for

(1) Regular film previews by staff officers and instructors
(2) Film storage on racks
(3) Projector storage
(4) Film inspection and repair
(5) Projector inspection and repair
(6) Operator training
(7) Booking and clerical activities
(8) Office of the Coordinator.

On the average, there were five full-time people assigned to carry on the routine operations of an Army film library in addition to the officer-in-charge. In large central libraries this personnel frequently was increased to ten full-time employees, and in some cases, where volume and activity were especially heavy, to twenty.

Apart from the officer-in-charge of the film library, no highly skilled personnel was required except for the maintenance of projectors. All other personnel were trained on the job. Actually, it was not within a strict interpretation of Army regulations that projectors were repaired in film libraries. They were supposed to be shipped to repair depots for anything other than replacement of lamps, belts, etc. From a practical point of view, however, it was found necessary for the film library to assume more responsibility for repair than was anticipated in the regulations, and the assignment of a projector repairman to a film library proved a great asset to the film utilization program.

Female personnel served with high efficiency in booking, inspecting, and repairing films; and in some film libraries, far better than men. In a few rare cases WAC officers were placed in charge of a film library. Their success or failure in these individual cases was a matter of both professional competence and feminine charm and personality.

The Army soon learned that a central location of the film library was essential to its full use. Many film libraries were originally located in warehouses near the railroad tracks. As the film program swung into high gear, and as a preliminary to it, most film libraries were moved to a building centrally located to be convenient to the greatest number of users. Since most using units in the Army had their own trucks and jeeps, the provision of a pick-up and delivery system by the library was exceptional. However, the establishment of transportation facilities and pick-up and delivery service in all film libraries was strongly recommended by various agencies who were called in at one time or another to survey the Army's film distribution program.

One does not have to argue the value of central location of the film library for constant previewing of films by teachers and supervisors, or the value of a service which delivers films and picks them up for return to the film library. Transportation facilities are intimately related not only to the expanded use of films, but also to the amount of film stock maintained by a film library to meet current demands from consumers. The more frequent the delivery and pick-up service, the fewer prints needed to supply the users. The films are kept in circulation, not lying idle in a school for a week or more when they are needed only two or three days. However, the costs of transportation, including that of operating personnel, must be weighed against the cost of additional prints which become necessary because of infrequent delivery and pick-up. Both items must, in turn, be weighed in terms of the service given the individual user of the films. It is easy to lose sight of the fact that films are for the sole purpose of use, and that effective use is possible only when there is efficient supply.

The dependence of the effective use of films in an educational program upon efficient organization and administration is far greater than is commonly realized today. Without films that are intrinsically good, easy to obtain, and easy to use—without these three things, the teacher is hamstrung, regardless of how convinced she may be of the importance of films in education and of her professional skill in using films in her classes.

7

CONDITIONS OF GOOD USE

BEFORE THE STAGE IS REACHED in education where films can be employed as basic teaching materials on a scale comparable to that attained in the war-training program, and can be used effectively in the attainment of broad objectives of the present-day curriculum, three developments are essential: (1) improvement of projector design for classrom use; (2) reduction of the physical chores of film use; and (3) effective organization and coordination of the program.

In each of these there was significant development in the film programs of both the Army and the Navy. While there was no fundamental change in projector design during the war, the carrying cases of projectors were strengthened to take the physical beating of a war-training program. Operators were trained so the instructor was relieved of the physical activities of film use. A corps of film utilization officers and coordinators was trained and assigned to gear films into training activities and to see to it that instructors knew what films were available and how they could be used to best advantage. And finally, instructor's guides on films were printed and distributed. In addition, there were demonstrations of effective methods of film use, newsletters and bulletins were issued, and research studies on film values and techniques of use were conducted. None of these activities was new in the sense that it had never been introduced in education before the war, but

it was in the systematic organization of these activities and in the broad scope of their application that something new was added by the Army and the Navy. And it was because of these developments that the use of films reached such a high level, at least quantitatively, in the war-training program.

Research studies, reviewed later in this chapter, support the conclusion that systematic organization of a film utilization program and provision of trained personnel to administer it can *double* the use of films within a very short time. Without such organization and administration there is film use, but it limps badly, and the cost is prohibitively high. Poor organization, or lack of it, and poor administration, or lack of it, makes educational films expensive.

Many of the procedures and techniques of organization for and administration of a film utilization program developed during the war are applicable to schools, colleges, and other educational agencies. Other problems confronting the development of postwar educational film programs are quite different. Projector design and construction, for example. With the Army and Navy there was need for rugged projection equipment, waterproof and fungus-proof, to withstand field use and climate. With schools, colleges and other educational agencies, the needs today are entirely different.

REQUIREMENTS FOR CLASSROOM PROJECTION

Shortage of light metals during the war resulted in the use of heavy metals in 16mm motion picture projectors. The standard war model 16mm projector weighs between 70 and 80 pounds—the projector itself weighs between 40 and 50 pounds, and the speaker between 20 and 30 pounds. It is no simple matter for the school teacher—frequently a woman—to carry 80 pounds of projection equipment through the halls and/or up the stairs of a school building into a classroom, and, once in the classroom with the projector, to mount it on a table or a stand. The dead weight of the equipment impedes its mobility from classroom to classroom.

Manufacturers have for some time worked out plans for a new

lightweight projector for *classroom* use. The speed and certainty with which these new models pass beyond the drawing board stage on to the assembly line and into the retail market, will, perhaps more than any other single factor, determine how quickly one of the serious obstacles to good use of motion pictures in education can be eliminated. The day-by-day school activities are in the classroom. Motion pictures will take their place as basic teaching materials when they are *used in the classroom.* In order that films may be used in the classroom, the projectors must be portable in fact as well as in name. It is necessary to define portability, not by an engineer's standards, but in terms of what the ordinary teacher or the ordinary student can carry without strain, discomfort, or undue effort. Projection equipment weighing 80 pounds is not portable within this definition.

Manufacturers' plans for new projection equipment also call for a high illumination lamp to overcome the difficulties of darkening the ordinary classroom, and sufficient power output of the speaker to provide audible and intelligible sound under acoustical conditions that are not ideal. They also call for greater operating simplicity of sound projectors. As simple as is the operation of present projectors in theory, it is necessary to increase this simplicity in practice so that 16mm projectors in the classroom can be used as easily as a mechanical refrigerator or electric iron at home.

OVERCOMING PHYSICAL DIFFICULTIES

Meanwhile the physical difficulties of good film use due to projector weight and to a fear of the mechanics of projector operation can be overcome by (1) a "visual education laboratory" in the school, and (2) a squad of student operators.

Pending the development of lightweight, functionally portable 16mm motion picture projectors for classroom use there is a trend in schools to develop visual education rooms in which the present heavy model projectors are semi-permanently installed. These rooms are equipped with dark shades, wall screens, and, sometimes, heavy drapes, to improve the acoustics. Under this arrangement,

the classes are moved from their regular classrooms into the visual education laboratory for screenings. Such a room has a material advantage in that it can be equipped at low cost for darkening and for amplified sound, but it also has the disadvantage of segregating films from the context of the classroom.

There is a natural temptation for the educational administrator to turn the visual education room into a small auditorium instead of a laboratory, in order to increase the administrative scope of its usefulness. A visual education room that can hold several classes means, administratively, that several classes can see the same picture or pictures at the same time. Too frequently this means that motion pictures are "shows," not basic teaching materials. When different classes are thrown together into an assembly situation, the learning environment has changed for both teachers and students. The continuity of the individual classroom situation is lost. The teacher is rare indeed who is able to integrate an assortment of films, shown to an assortment of classes, into the continuity of the instructional program of the classroom.

A visual education room, then, is something to be established with clarity of educational intent and to be guarded against abuse. It is a valuable makeshift arrangement until such time as lightweight classroom projectors become available, provided it is used as a visual *laboratory* by individual classes, not as a room where several classes are gathered together simply to "see" the films that have been delivered to the school from the film library.

STUDENT PROJECTIONISTS

The training and use of a squad or squads of student projector operators is another way of relieving the teacher of some of the physical chores that go with use of films. The use of films in the Army training program was facilitated by the training and licensing of GI projectionists in all using units. The Army's projector operator training program demonstrated two things applicable to school use of motion pictures: (1) that a systematic training program for operators is necessary if "student" operators are to be

used for motion picture projection in the instructional program, and (2) that the use of *adequately trained* "student" operators results in negligible film damage. It may also be said that the Army's operator training program demonstrated a third fact applicable to the schools: that the issuance of an operator's license or projection club membership card upon successful completion of the course of training adds greatly to the prestige of the "student" operator, and that revocation upon evidence of inefficiency, or a required period of retraining to avoid revocation, added greatly to the maintenance of this prestige.

Formal training of student operators and the award of a student operator's license or certificate of merit, with appropriate ritual and honor, preserved by the imminence of its withdrawal on failure to live up to prescribed standards of performance, goes a long way toward making the good use of films in the classroom physically easy rather than difficult for the teacher.

When this solution to some of the projection problems of teachers is proposed it sometimes meets with the objection that, while the plan is excellent in general, it is not applicable to a particular school because the students who attend that school are so irresponsible. Such a plan would, lamentably, result in severe damage to both projector and films. This is a pessimistic and a logical way to consider the use of student operators. Psychologically, however, irresponsibility is often an evil spawn of the failure to give real responsibility to students, and to give it a prestige value acceptable to the person who is expected to assume responsibility. The irresponsibility of children and adolescents is less chronic when responsibility is real to them, and when it is dressed up with membership and mummery, and the adult common sense of it is "kept as an esoteric secret in the dark temple of culture."

The greater the responsibility that is turned over to students, the more vital the program of films becomes in a school. This is true not only in the participation of students in discussion and research and expressive activities that go with good use of films, but in the preliminary research for appropriate films and in clerical and operating activities as well. Students can comb through film

catalogues as well as through library book and magazine indexes to locate available materials, and they can participate in the selection of films that contribute to their study of a unit or a subject as well as they can participate in the selection of other sources of experiences that help them grow and develop. Students can handle much of the clerical activity that goes with ordering films. Students can project the films. Students can manage the traffic of films and projectors to classrooms, or the traffic of classes to the visual education laboratory. Student participation is the essence of the educational process of growth and development. And it is a very important element of good management that goes with good use of films in school.

In the training of student operators, it is not only the understanding and mastery of mechanical skills involved in the operation of a projector that is important. A sense of and a pride in showmanship in projection are also important. Good showmanship involves knowledge of when to light up the screen, when to turn up the sound, how to adjust the tone control to high or low voices or sounds, how to adjust the volume to avoid "noise" in place of sound, how to run the film through the projector without the flickering of light and the bumping of sound at the beginning and the end of the film, how to get and keep sharp focus throughout the film, where to place the amplifier for the best sound, how to provide ventilation and some light for note-taking without throwing extraneous light on the screen, and so on. Good projection means good planning for picture and sound, for ventilation, and for the elimination of blinding light on the screen and noise from the amplifier. It means constant attention to detail before and during projection. It means showmanship in projection. In turn, showmanship in projection means that the teacher and class can concentrate on what is shown in the film without distraction due to slip-shod projection.

Provision of a visual education laboratory in order to overcome problems of projector weight, and the training and use of student operators reduce the chores of film use for the teacher. Chores have their value in the lives of growing children and adolescents, but

to adults they are discouraging details, annoying, and time-consuming.

ORGANIZATION AND ADMINISTRATION

Overcoming the physical handicaps of film use is only a small, though necessary, part of a broad program of good use of films in the curriculm. Experience of the armed services, both in the Army and Navy, has demonstrated that good organization and administration, clear policy, good planning and coordination, and intelligent, cooperative supervision all are essential to a well-developed and effective program of motion pictures in education.

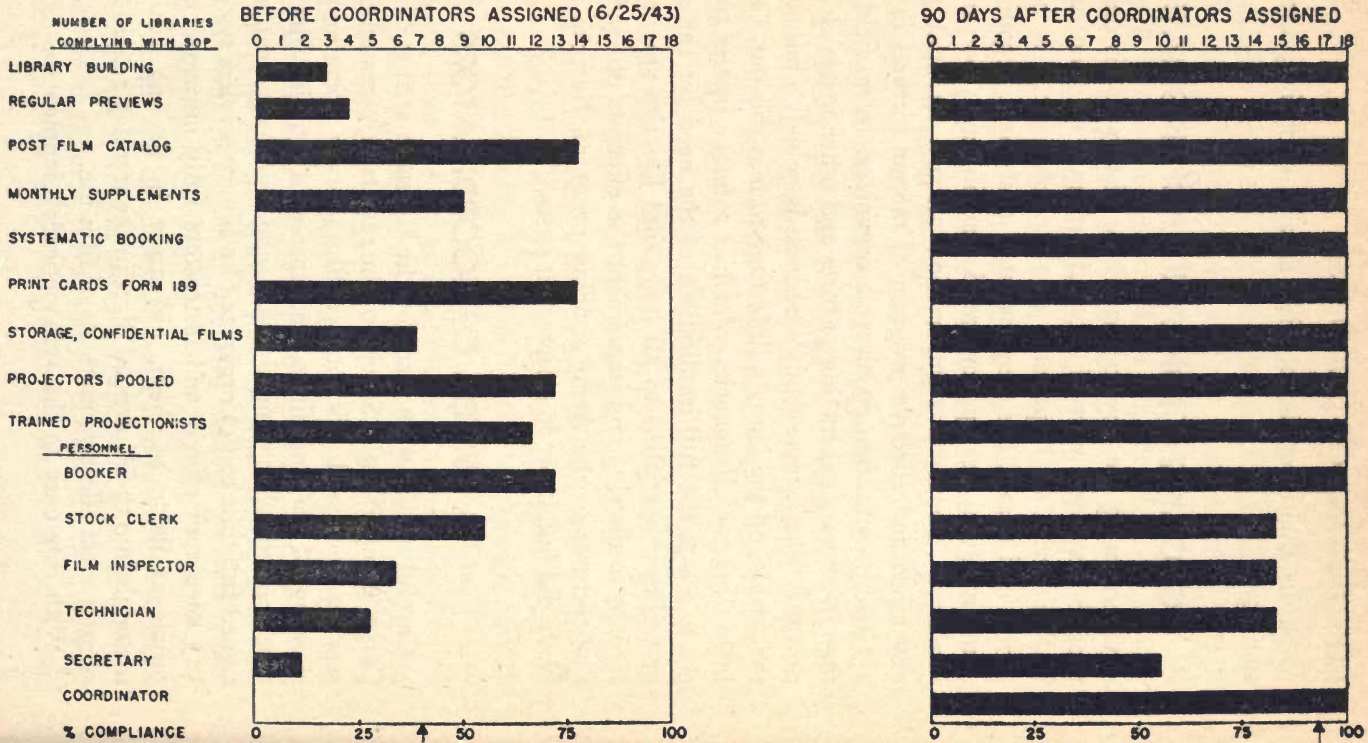
Good organization requires an organizer. In no field is it truer than in educational motion pictures and other materials of instruction that what is everybody's business is nobody's business. It took the Army and the Navy a little time to find this out, i.e., it took a little time for all agencies who had a finger in the training-film pie to accept the full implications of the need for the assignment of full-time specialists to all large film libraries and training-aids sections to develop and implement the effective utilization of motion pictures in the Army training program. But the Army and Navy did find it out in a few short years.

A SYSTEM OF COORDINATORS

Careful studies were made by the Research section of the Signal Corps' Army Pictorial Service of the results in increased film library services, increased efficiency of film library operation, increased showing of training films, and increased training-film audiences that accrued when trained visual education coordinators were assigned full-time to (1) organize film library services systematically, (2) keep staff officers and instructors fully informed of the materials available to them, (3) assist in gearing available film materials into their intended place in the training activities, and (4) suggest most effective methods of film use.

With reference to the systematic development of facilities and

OPERATING STATUS OF 18 TRAINING FILM LIBRARIES IN FOURTH SERVICE COMMAND



services for supplying training officers with films—such as arranging regular previews so that training officers could prepare for their most effective use, compiling and supplying a basic catalogue of films available in the film library and monthly supplements to follow, using systematic booking procedures and print record cards, centralizing the control of projectors, training projectionists in all using units, and staffing the film library with personnel essential to the efficient performance and provision of all these services—a study was made before and after a visual education coordinator was assigned to each of eighteen film libraries in the Fourth Service Command (June 1943). The results are shown in Chart III.

It can be seen from the chart that the efficiency of film library services was increased from 40 percent prior to the assignment of the coordinators to 94 percent within ninety days of their assignment. Only in their full quota of personnel were the eighteen libraries to which full-time coordinators had been assigned less than 100 percent up to standard. Whereas only four libraries arranged for regular previewing of training films before the assignment of the coordinators, all eighteen supplied this essential film utilization service ninety days after their assignment. Whereas before the coordinators were assigned, only three film libraries were housed in buildings centrally located and conforming to minimum standards of layout, space requirements, and ease of physical movement of films and projection equipment, all eighteen libraries were suitably housed within ninety days of the assignment of coordinators. Whereas only five libraries had a technician assigned to keep projectors in good operating condition before the assignment of coordinators, fifteen out of the eighteen had full-time technicians assigned to the maintenance of projectors within nineteen days after. And so on down the list of essential facilities, services, and personnel.

A second study of the value of the visual education coordinator has to do with the reduction of inventory levels of films carried by a library and the increase in the rate of turnover of prints. The study covers a six months period, from the end of June to the end of December, 1943. The number of prints of films maintained in

eighteen film libraries to which eighteen full-time coordinators were assigned was compared with the number of prints maintained in eighteen film libraries which operated without the services of a coordinator—i.e., under the direction of officers who had other duties and who had not been especially trained as film library coordinators. The results of the study are shown in Chart IV.

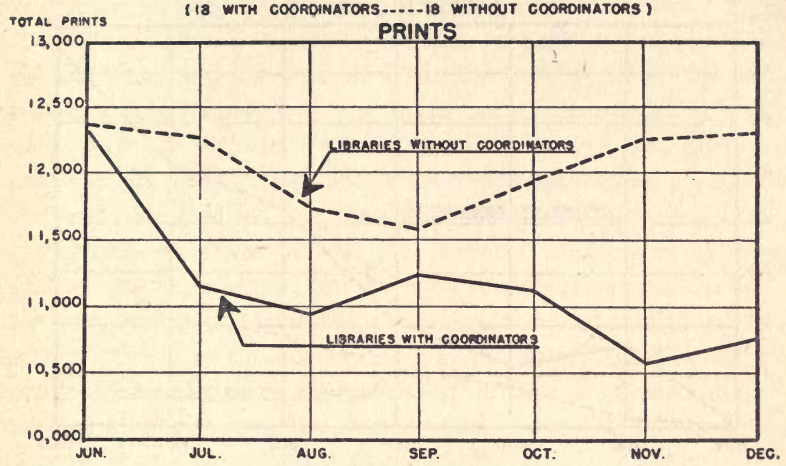
From a perusal of the first part of Chart IV it can be seen that over a six-month period, the number of prints in the eighteen film libraries with coordinators was reduced from approximately 12,400 at the end of June, 1943, to approximately 10,800 at the end of December, 1943, a reduction of approximately 1,600 prints, or 13 percent. The number of prints maintained in the film libraries without coordinators were approximately the same in December as in June. Between June and September of 1943 there was an intensive drive by the Army Pictorial Service to reduce the amount of print stock maintained in all film libraries so that films surplus to training in this country could be made available for redistribution overseas. In the libraries without coordinators there was a drop in film inventory between June and September, but from September on there was a rise in film stock until the inventory reached the level maintained before the drive to reduce surplus stock was instituted. In libraries with coordinators, however, there was continued reduction of film stock between September and December, although the curve fluctuated from month to month.

Comparing the print utilization of the two groups of libraries shown in the second part of Chart IV, it can be seen that in those which operated without coordinators there was a slight improvement in the rate of use of the film stock maintained. From an average of one showing per print per month, June, 1943, the rate of use climbed in six months to an average of nearly 1:5 uses per print per month. On the other hand, in those film libraries with coordinators, the rate increased from approximately 1.3 showings per month in June, 1943, to approximately 3 showings per print per month in December, 1943. This increase in the rate of print utilization is due not only to a reduction of the number of prints

CHART IV

TOTAL PRINTS AND SHOWINGS PER PRINT
IN
36 TRAINING FILM LIBRARIES
(JUNE TO DECEMBER 1943)

(18 WITH COORDINATORS-----18 WITHOUT COORDINATORS)



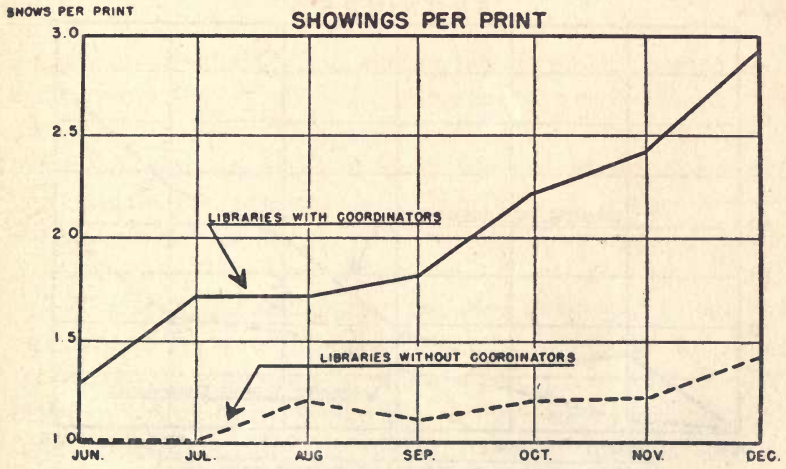
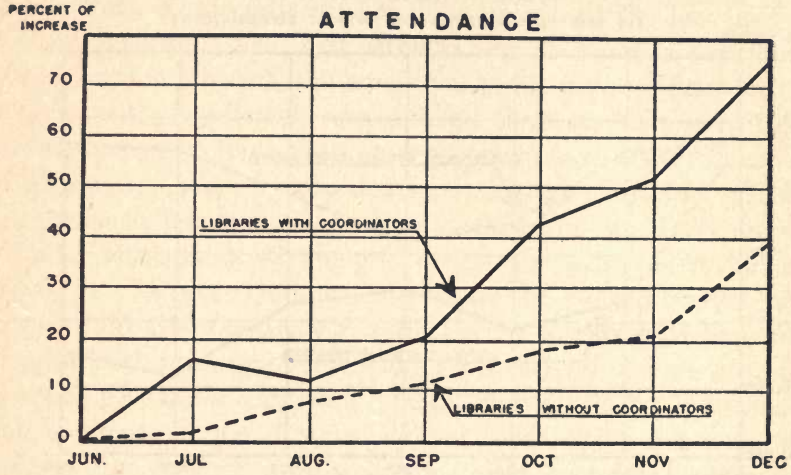


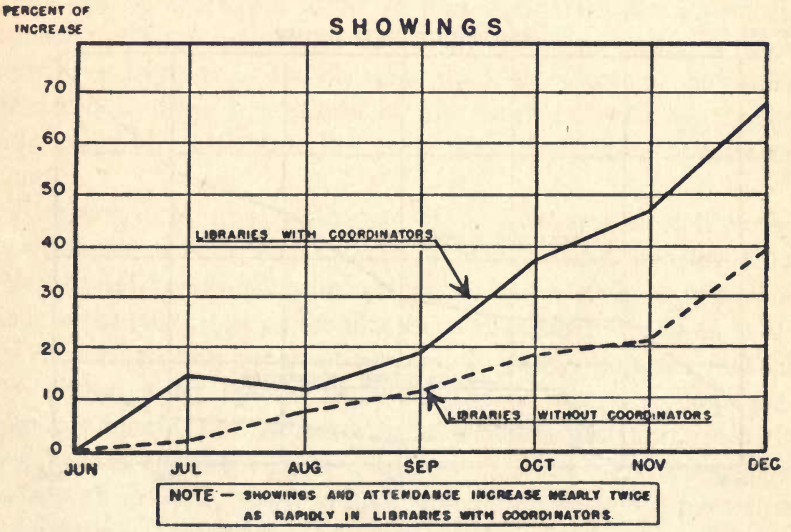
CHART V

OPERATING STATUS OF 36 TRAINING FILM LIBRARIES

(JUNE TO DECEMBER 1943)

(18 WITH COORDINATORS----- 18 WITHOUT COORDINATORS)





NOTE — SHOWINGS AND ATTENDANCE INCREASE NEARLY TWICE AS RAPIDLY IN LIBRARIES WITH COORDINATORS.

surplus to the training requirements of the troops served by the film library, but also to an increase in the turnover of the prints.

The results of assignment of a coordinator when measured in terms of the increase or decrease in the number of showings and the increase or decrease in audience reached by films was also investigated by the Research Section of the Army Pictorial Service. Results are shown in Chart V. The first part shows that between the end of June and the end of December, 1943, there was an increase of approximately 38 percent in the audience reached by films supplied from libraries without coordinators and that during the same period there was an *increase of approximately 75 percent* in the audience reached by films supplied from libraries with coordinators. In other words, the increase in number of people reached by films from libraries with coordinators is *twice* that of libraries without coordinators. Almost the same relative difference is evident in the number of film showings, as indicated in the second part of Chart V. There was an increase of 38 percent and 67 percent respectively in the number of film showings from libraries without coordinators and with coordinators.

A factor that promoted the gain in showings for both groups of film libraries is the increase in the number of new films distributed to all film libraries during the six months period of the study. From June through December of 1943 more than 150 new films (an increase of 17 percent in total film subjects) were distributed for use in Army training. However, since this increase was constant for both groups of film libraries, it does not materially affect the *relative* difference in film showings and audience reached.

Data from this study appear conclusive of the point that the assignment of full-time, specially trained coordinators to promote the effective use of films in a training program resulted in (1) lower inventory of films necessary to serve the using units, (2) a higher turnover of films per month, (3) a greater number of uses of films, and (4) a larger total audience reached by films. Points (1) and (2) relate to the cost of an educational film program; points (3) and (4), to the effectiveness of the program as measured

by the number of film uses and the number of people to whom films are shown. Roughly speaking, the assignment of a trained visual education coordinator to implement the use of films in the Army training program had the result of doubling the rate of film use and audience reached by films at a saving of 13 percent in the quantity of films necessary to do the job.

The concept of the coordinator, or "film utilization officer" as he was designated in the Navy, was adapted by the armed forces from civilian education before the war. Much of the success of the film programs developed in conjunction with the American Council on Education's study of motion pictures in education, concluded immediately before America's entry into World War II, was the result of the training and use of "visual education coordinators," not only in the administrative level of the college or school system, but in the individual schools. In the Santa Barbara (California) schools, the Denver schools, the Tower Hill (Wilmington, Delaware) School, and the General College, University of Minnesota, which carried on intensive studies of the effective use of motion pictures in their developing programs, responsibility for coordination and implementation of the film programs was centered in "coordinators," who, in most cases, were teachers with a certain amount of free time each week to carry on in individual schools the activities necessary to the widespread and effective use of motion pictures in classroom situations.

In the School District of Philadelphia, the duties of a visual education coordinator have been defined as follows:

1. To advise all teachers on available films, slides, and recordings, and effective methods of their use.
2. To maintain and make available to teachers all available catalogues and other informational materials on available audio-visual materials.
3. To provide for the care, storage, cleaning, and oiling of projection equipment.
4. To schedule projection equipment, visual education rooms, and films and slides for use by various teachers.

5. To train projectionists.
6. To organize and supervise a projection club.
7. To coordinate the use of audio-visual aids throughout the building.
8. To arrange for ordering, delivery, and return of audio-visual aids from the Division of Visual Education.

It is evident, from this list, that these duties are two-fold: (1) the administration of the physical and clerical activities so as to facilitate the mechanics of film use, and (2) the provision of professional information and advice so as to facilitate the selection and effective use of visual materials appropriate to the curriculum program of the individual teacher and class. This two-fold service is the essence of a well-organized and well-administered program of visual education. It applies to the duties of the visual education director, supervisor, or coordinator in a state department of education, or a state university, or in a national labor union, or a large industry, or in churches, or in an adult education association, or any other form of organized education. It applies to the duties of the director or supervisor of visual education and the administrative staff of a city or county school system and to the coordinator in the individual school building.

It has been observed over the years that the first of the coordinator's two responsibilities—administration of physical and clerical activities—can easily and often does get in the way of or overshadow the professional activities that are equally important. Care of projectors, the routine scheduling of films, and the operation of shipping and receiving services consume time and energy if allowed to, and when they do they eat into the professional interests of the coordinator. Also, the mechanical services provide the coordinator with more tangible and, hence, immediately satisfying rewards for his activities. Restoration of a disabled projector to good operating condition, or an increase in the number of films shipped daily or weekly or monthly to using organizations can be easily seen or measured. Increase in the effective use of these materials in the curriculum is not easily seen, because it happens in

more or less remote classrooms, nor can it easily be measured because accurate measuring instruments are not available. The absence of readily discernible and measurable professional results and, hence, the absence of immediate professional rewards for professional activities are sources of temptation to concentrate time and energy on the administration of the mechanical aspects of the motion pictures program, rather than to routinize and subordinate them to the professional aspects of effective use of films in the curriculum.

It is perhaps because of this that the qualifications of a coordinator in the Philadelphia schools has been defined as follows:

1. An enthusiatic belief in the values of audio-visual education.
2. A greater concern for the wide and effective use of films, slides, etc., than for the pure mechanics or optics of a projector.
3. A willingness to attend periodic previews of new films, arranged by the Division of Visual Education.
4. A willingness to assume additional duties in order to help teachers and pupils in the building.
5. A "good mixer" type of personality.

These qualifications are consistent with the qualifications laid down by both the Army and the Navy for their visual education officers. The Navy approached the problem of the dual nature of the film service by assigning two separate officers to the job, a film distribution officer and a film utilization officer. Both were stationed in the training-aids section of naval districts and training stations, but each had separate responsibilities. The film distribution officer may or may not have had civilian experience in the operation of a motion picture exchange, thus qualifying in some of the aspects of physical distribution and film service, but in almost all cases, the film utilization officer had civilian experience in a college or school system in which extensive use of educational motion pictures had been developed prior to the war and in which progress had been made in developing *effective* use of films as curriculum materials. Largely because of this emphasis on *effective*

use, the name *training-aids library* was changed in Navy nomenclature to *training-aids section.* It was apparently felt that the term *training-aids library* implied a static depository of materials, while the term *training-aids section* implied a dynamic activity. The term, *film library,* was retained in Army nomenclature, as consistent with emerging concepts of the dynamic function of a library in a community or educational institution. The important thing about this is not the nomenclature, but that in the armed services the functions of the training aids or film library organizations were conceived in dynamic terms, not as warehouses of educationl materials or as educational supply agencies which assumed no responsibility for the extent or the effectiveness with which these materials were employed by the consumer.

In the Army film program, served by the Signal Corps' Army Pictorial Service, the dual problem of the physical supply and professional services was met by consolidating both distribution and utilization activities under one administrative officer. The training-film distribution and utilization program was headed by a group of officers and civilians who, in civilian life, had been active in research and development of effective educational film utilization. The consolidation of film supply and film utilization services of the Army Pictorial Service was effected after attempts had been made to develop a film utilization program without exercise of control over film distribution by those active in developing wider and better utilization. Early in 1942 it was discovered that an effective program of film use was difficult to develop until the distribution facilities were set up so as to meet requirements of film utilization.

The need for separate film distribution and film utilization officers was eliminated in the Army Pictorial Service program by the development and standardization of booking records, order and delivery forms, film library procedures, distribution methods, and monthly film inventories and reports of individual film use. In this way the guess work, the waste, and the need for previous civilian specialty in film distribution and film library operation were removed. To accomplish this standardization a large and at-

tractively illustrated brochure, setting forth a series of recommendations on buildings, personnel, procedures, forms, and operations, was prepared and presented to representatives of all service commands at a conference on film distribution, and distributed by mail to all overseas commands. These procedures, forms, and operations were later incorporated officially into the Army's supply procedure, and so became an integral part of the system and routine of film library operation of all Army posts, domestic and overseas. Standardization of film library operations had the effect of routinizing the physical activities essential to wide use of films in the training program, and thus enabled the visual education coordinator to concentrate on the professional aspects of his job—facilitating the *effective* use of films in the training program.

With the exception of the officers in headquarters and those who established pilot programs domestically and overseas, not all of the Army's film coordinators were professional educators. Most of the Army's officers came up through the ranks, and some of the officers who served as visual education coordinators were selected from the recent graduates of the Signal Corps' Officer Candidate School. Hundreds of recent graduates of the Signal Corps' Officers Candidate School were carefully screened for qualifications approximating those established by the Philadelphia schools for their visual education coordinators. The qualities of enthusiasm, brightness, imagination, willingness to work, ability to deal with people, pleasant personality, and spiritual endurance were high on the list of qualifications. College training and educational experience were preferable, but not as essential to the Army's program as it is in civilian education. One of the most successful of the Army's visual education officers, one who was decorated overseas for outstanding service in the training film and entertainment film programs in the combat zones, was a highly talented and capable young man who had never been graduated from high school.

Those officers selected through the OCS screening process were given a course of practical training in their duties and in the materials and methods with which they had to deal. In cases where qualified civilian educators were available for assignment as visual

education coordinators, training programs were developed to familiarize them with Army procedures, channels, and the peculiar mental and emotional processes of the military mind.

Toward the end of the war, the coordinator and his team of film library personnel were officially recognized as essential to overseas as well as in domestic training centers and provision was made for their inclusion in Tables of Organization and Equipment that are the core of the Army's personnel and supply system. This was the final step in the complete acceptance and integration of the visual education coordinator into the Army system. Visual education in the Army is no longer a wheel within a wheel, but an integral part of its organization and training.

In less than three years after the outbreak of war, the Army and the Navy learned the need for and value of the visual education coordinator, and established him in the military and naval training programs as essential to the wide and effective use of motion pictures and related teaching materials. The system of coordinators reached from the Pentagon and the Navy Annex in Washington to the operational levels in camps and training stations in the United States and overseas. The duties of the coordinator, both in the Navy and the Army, were primarily professional, aimed directly at wide and effective use of modern teaching materials. Both the Army and Navy recognized that a good background in professional education was highly desirable in a visual education coordinator, and that in addition, there was need for abundant energy, enthusiasm, hard work, and persistence in the face of indifference or open opposition.

The general pattern of coordination of the visual education program—beginning with a full-time director or supervisor of visual education on the state, county, and city levels, and going down to individual schools through the designation of a teacher in each school building to spend several hours a week coordinating visual education activities within the building and assisting teachers in the selection and effective use of visual materials—appears to be as essential to the development of good use of motion pictures in education as it was in the armed services. The armed services were

the proving ground for this very system, the development of which had started in individual school systems and colleges before the war. The pattern is equally essential among educational or training agencies other than schools and colleges.

STAFF COORDINATION

Much coordination must be done on a staff level in education or training as well as in individual schools, if the use of motion pictures in education is to achieve appropriate stature. Again, the pattern developed in the armed services is applicable to education.

That motion pictures were initiated by the agencies charged with specific training programs, and that they were produced to satisfy requirements set up by these agencies, has been discussed in a previous chapter. Coordination of technical production with training requirements and programs was, however, only a part of the broader program of staff coordination. Three additional measures were taken on the staff level to integrate films into the training program and to develop effective methods of their use:

1. Films and film strips were written into specific training courses on the same basis as books, manuals, demonstrations, and actual practice.
2. Systematic arrangements were made for the previewing of all new films (as well as older ones) by staff officers charged with the conduct of training programs and by instructors who carried them out.
3. Instructor's film references, intended to assist the instructor in making most effective use of the film in training situations, were prepared by the training agencies charged with the development of the films and other training materials, devices, and procedures.

The listing of films in courses of study, units, or resource units is an essential part of the development of an educational motion picture program as it was a part of the development of a military

and naval training film program. The listing of films in bibliographies of textbooks and manuals and in books and manuals on teaching methods in particular school subjects or subject areas is also essential. It was not an accident that films were listed in training programs as well as in film catalogues of the Army and the Navy. It was the result of good staff planning. Since films were produced for use in specific training programs, and since the production was planned and coordinated by the agencies charged with the development of these training programs, it was a logical step for the training agencies to write the films into these programs in the same way that other resource materials were written in: by listing specific films in those parts of the training programs to which they were appropriate and for which they were produced.

In postwar education, this kind of integration can be provided for on a staff level by listing appropriate films in all state and local courses of study, and in the other publications prepared by curriculum committees or subject-matter specialists, dealing with instruction or instructional programs. It is one of the important jobs of the state or city visual educational coordinator or the director of instructional services, to keep in touch with all curriculum departments to insure that films and related materials are brought to their attention and integrated into their thinking, writing, and other professional activities.

One of the best methods of accomplishing this is by systematic provision for previewing of films by the agencies, individuals, or staffs of professional divisions charged with the development and supervision of various curriculum areas and activities, and the heads of administrative divisions which control funds and supplies. This fact was thoroughly demonstrated by both the Army and the Navy. The old adage that "seeing is believing" is particularly true in the wide and effective use of films. The visual education coordinator made a point of arranging a weekly evening preview of films for training officers of all divisions on the posts. Such practice generally resulted in the immediate listing of appropriate films in the training programs of these divisions, thus alerting all instructors to the latest and best material available. The

practice was also followed in Service Command headquarters and among the schools of the various Army components, with the same results.

Opposition to motion pictures in education is an inert kind of thing. It exists, generally, among conservatives grown crotchety and those innocent of educational films to the point of ignorance. It frequently melts into an enthusiasm when those opposed to or indifferent toward educational films are given ample opportunity to see some of the best films that have been made for teaching in a subject area dear to their heart or a stumbling block in their own school days.

Provision for systematic previewing of films by staff and instruction divisions serves three valuable purposes in an educational film program. First, it provides expert assistance in the selection of films appropriate to the curriculum programs developed or being developed by these agencies. Discussion of films after staff previewing often serves to set up or clarify criteria for films in various subject areas, where these criteria may not have been previously formulated or articulated. These discussions are also fruitful of criticisms of existing films and suggestions for new films or new film techniques both of which can and should be passed along to film producers. Secondly, staff agencies which assist in the selection of films for use in curriculum programs tend to assume responsibility for developing a wider and more effective use of these films in the instructional programs over which they exercise planning or supervisory responsibility. The more that films and related materials are incubated in the programs for which they are responsible, the more will these agencies stimulate the effective use of these materials by classroom teachers. Finally, systematic previewing by staff agencies helps to maintain the interest of these agencies in educational motion pictures and to develop a necessary backlog of enthusiasm and general support for the funds, personnel, and activities necessary to carry out an effective program of motion pictures in education.

Preparation of instructor's film references was a third aspect of staff coordination that was characteristic of the film programs of

both the Army and the Navy. Again, this was not an activity newly developed in the military services. It was the standardization of instructors' references, their simplicity, and their practicality that were new.

Preparation and publication of instructor's film references were based on the sound assumption that Army and Navy instructors, like civilian instructors, knew most about films as entertainment, least about films as an educational medium. The large majority of instructors in the armed services were anxious to use motion pictures as teaching materials, but they were more or less naive about them so far as knowing where and how to use them to best educational advantage. To many Army and Navy instructors, as to many civilian instructors, there was no discrimination between *showing* films and *using* films. To *use* films was simply to *show* them. Research results reported in an early chapter on the increased learning which resulted from careful audience preparation and follow-up activities were not available when the film program was being developed on a wide scale—and if they had been available, they probably would not have been read by the rank and file of instructors. Scholarly reports of research studies is a technique least likely to influence either the Army or Navy instructor or the classroom teacher. Something less technical and more specific is needed.

So the instructor's film reference was developed. This reference was intended to do several things: (1) to enable the instructor to *select* films appropriate to a particular training program and a particular stage of the training program with the least amount of trial and error; (2) to suggest appropriate ways of preparing the audience for observing the important elements of the film; (3) to suggest appropriate follow-up activities; (4) to suggest a series of questions which could be used for (a) motivating learning, (b) evaluating learning, and (c) reteaching as necessary, and (5) to list other current teaching materials available on the same subject to round out the teaching program.

Two samples of War Department instructors' film references are reproduced. The one deals with the training film, TF 11-1384, *Loading and Unloading Poles,* and the other with the training

FR TF 21-1404

WAR DEPARTMENT INSTRUCTOR'S FILM REFERENCE

GROUND ACTION AGAINST AIR ATTACK

RUNNING TIME: 21 MINUTES • RELEASED FEBRUARY 1945

AUDIENCE: All military personnel

FILM SYNOPSIS

This film instructs soldiers of all arms and services in defense measures, both active and passive, to be taken against hostile aircraft. It also seeks to alleviate inordinate fear of attacking airplanes by honestly demonstrating the effects of ground fire against aerial targets and air fire against ground targets.

With a spectacular portrayal of the curtain of fire

USE AND PLACE IN TRAINING PROGRAM

Regardless of other training methods used, showing the film is recommended because it concerns mental conditioning as well as specific instruction in how to behave when airplanes attack. The film is an excellent aid for introducing recruits to the subject. It should be shown to all troops during individual training in defense against aircraft. It can also be used advantageously during unit training just before the unit undertakes actual practice in the subject.

which ground forces can send up, the point is made that while a lone rifleman is no match for an airplane, when he is joined by other riflemen and machine gunners the odds are good that some will get hits. To improve these odds, instructions are given in how to sight, lead the target, and fire. The possible effects of such fire are related by an airplane mechanic. A lucky hit *may* knock an airplane down. But almost *any* hit will send an airplane to the shop, and a hit in one of a dozen vulnerable spots will put it out of action for some time. The mechanic adds the caution, "Be sure you know whose planes you are firing at."

But the primary mission of ground troops is to fight the enemy on the *ground;* so they seek to avoid tangling with airplanes. *Passive* defense measures to be taken in bivouac, on the march, and at the front are shown, with emphasis on concealment from *observation* as well as from attack. The change-over from passive to active defense is demonstrated by an attack on a marching column.

A final, dramatic sequence delivers this message: Mass attack from the air is calculated to confuse and demoralize ground forces so that they forget to fight back. Remember, although airplanes may sound frightening they are just another type of weapon from which you can defend yourself and which you can attack. You have three answers to them: (1) camouflage and concealment, (2) dispersion and cover, (3) the curtain of fire.

SUGGESTED INTRODUCTORY REMARKS

"The motion picture we are going to see is entitled, 'Ground Action Against Air Attack.' It shows both the passive and active measures you should take against attacking airplanes. It also demonstrates how much damage airplanes can do to you and how much damage *you* can do to *airplanes*. The information given in the film applies to *all* soldiers, regardless of arm or service. (The instructor may amplify this last statement to suit his particular audience, and based on his *preview* of the film he should indicate any specific points he wishes his audience to look for.) After the film has been shown you will be given a quiz to determine just how much you have gotten out of it."

SUGGESTED FOLLOW-UP ACTIVITIES

The nature of the follow-up depends on the state of training of the personnel and the points the instructor desires to stress. Since the message of the film is partly psychological, its showing should always be followed by group discussion. Actual practice in the tactics and techniques demonstrated in the film should be held as soon as possible after the showing. Blackboard and film strips can be used for review sessions. All follow-up activity should stress the three basic means of defense: (1)

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camouflage and concealment, (2) dispersion and cover, (3) the curtain of fire.

CORRELATED TRAINING MATERIALS

FM 100–5, Field Service Regulations, Operations (see "Antiaircraft Security" in index).

TM 5–310, Military Protective Construction (passive defense measures against aerial attack).

FS 7–141, Infantry Fire as a Defense Against Aircraft, Part I, Rifles and Automatic Rifles.

FS 7–142, Infantry Fire as a Defense Against Aircraft, Part II, Machine Guns.

TF 1–3351, Camouflage Cartoon.

TF 5–646, Camouflage of the Bivouac Area.

TF 5–648, Camouflage, Use of Artificial Materials.

TF 5–649, Camouflage Principles.

TF 5–1210, Camouflage, Air Views.

TF 7–993, Infantry Hasty Field Fortifications, Part I, Individual Intrenchments.

TF 7–1131, Infantry Hasty Field Fortifications, Part II, Emplacement of Light and Heavy Cal. .30 Machine Guns.

TF 7–2051, The Soldier in Bivouac.

TF 17–1083, Tank Platoon, Bivouac and Outpost Security.

Aircraft Recognition Aids listed in FM 21–7 and FM 21–8.

Note. New training films on Camouflage, now in production, will replace some of those listed above.

3. Ground fire may be counted ineffective if at least one airplane is not knocked down. True, *False.*

4. Ground forces should (*avoid engaging enemy airplanes if possible*) (avoid engaging enemy airplanes under any circumstances) (seek to engage enemy airplanes whenever possible).

5. Name the four primary elements in passive defense against air attack. *Camouflage, concealment, dispersion, cover.*

6. Camouflage and concealment offer protection from (attack only) (reconnaissance only) (*both attack and reconnaissance*).

7. Aerial reconnaissance is often made from high-flying, fighter-type airplanes. *True,* False.

8. The air-warning signal consists of (two) (*three*) (four) (five) whistles, rifle shots, horn-blasts, etc.

9. Ground forces fire on airplanes (*on the command of the fire-unit leader*) (as soon as the airplanes are recognized as hostile) (as soon as the airplanes get within range).

10. When a column is attacked by airplanes, trucks usually (*keep moving*) (close up) (halt where they are).

11. When a column is attacked by airplanes, foot soldiers (keep moving) (remain calm and march off the road in formation) (*disperse off the road*).

12. Airplanes which attack one part of a column often invite attack from another part of the column or from a column on a nearby road. *True,* False.

SUGGESTED QUIZ

Warn your audience in advance that you are going to give a quiz after the film has been shown; this usually causes them to pay stricter attention. The quiz also serves as a guide to those points needing further clarification. The following suggested questions may be enlarged upon, or others substituted, to suit the immediate situation. Correct answers are in *italics*.

1. Riflemen and automatic riflemen fire against aircraft on a crossing course at a fixed lateral lead of (two) (four) (*six*) target lengths.

2. When an airplane is flying away aim (*at the body of the airplane*) (just ahead of the airplane) (considerably ahead of the airplane).

After each of these numbered items, indicate which of the following lettered items is most closely related:

13. Camouflage and concealment. (*d*)
14. Dispersion and cover. (*a*)
15. The curtain of fire. (*c*)

(a) Makes a ground unit a poor target and minimizes the damage airplanes can do.

(b) Aids in the detection of approaching airplanes.

(c) Drives off airplanes and knocks them down.

(d) Helps ground forces avoid unnecessary battle with aircraft.

(e) Helps friendly airplanes identify their own ground forces.

[AG 413.53 (23 Jan 45)]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL
Chief of Staff

OFFICIAL:
J. A. ULIO
Major General
The Adjutant General

DISTRIBUTION:
Continental: SvC (5); A (1); GHQ (1); D (1); B (1); R (1); Bn (1); Sep Bn (1); Gen & Sp Sv Schs, ea 1,000 men (1); ASF TC, ea 1,000 men (1); AGF TC, ea 1,000 men (1); ASF UTC, ea 1,000 men (1); AGF RTC, ea 1,000 men (1);
Oversea: T of Opns (50); SvC (50); Island Comds (25); Base Comds (50); Def Comds (50); Depts (50); (No distribution to AAF Units)
For explanation of symbols, see FM 21–6.

U. S. GOVERNMENT PRINTING OFFICE: 1945

FR TF 11-1384

WAR DEPARTMENT INSTRUCTOR'S FILM REFERENCE

LOADING AND UNLOADING POLES

RUNNING TIME: 21 MINUTES • RELEASED SEPTEMBER 1944

AUDIENCE: Line construction, fixed radio station, and depot personnel of the Signal Corps

FILM SYNOPSIS

The loading and unloading of poles is a job that must be done quickly and safely with whatever equipment is available. This film shows a safe and effective procedure to be followed when flat-cars and two-wheeled trailers are involved.

The problems encountered by crews engaged in handling poles and speeding them to the job are pointed out in this film. Unusual or special equip-

SUGGESTED INTRODUCTORY REMARKS.

"Any crew may be called upon to load or unload poles. The procedure shown in this film makes that job easier and safer for both beginners and experts."

(Based on his *preview* of the film, the instructor should now emphasize those points of instruction of special importance to *this* audience during *this* showing, stressing main points to look for.)

SUGGESTED FOLLOW-UP ACTIVITIES

The nature of the follow-up depends on the state

this type of work will have equipment similar to that pictured. The method of pulling poles into a loading position by truck and the process of rolling the poles, three at a time, up skid poles and onto a flatcar are clearly illustrated. Another sequence shows the proper method of tying down a load of poles for shipment. Throughout the film the narrator directs attention to the safety precautions that must be taken.

The narrator explains that 120 poles, one flatcar load, are needed for the construction of each 4 miles of open wire line. He also points out that pole line construction must follow our troops on all fronts.

USE AND PLACE IN TRAINING PROGRAM

This film is intended for use in the specialist training of all personnel whose assignment may include the installation or storage of poles. It is also recommended that it be given a second showing late in the team training of construction units to emphasize safety precautions and efficient handling of poles.

of training of the personnel and the points the instructor desires to stress. The following procedure is recommended:

a. Discussion and quiz on the film.

b. Showing of films and further instruction (if not covered previously) on construction trucks, nomenclature, and use of equipment shown in the film.

c. Practical exercise of loading and unloading poles. Actual demonstration of the loading and unloading of a flatcar is preferred, but class-room models may also be used.

d. Repeat showing of the film near end of training. Follow this with a discussion of the film.

e. Written examination.

CORRELATED TRAINING MATERIALS

FS 11–41, Truck K–43, Part I, Introduction.

FS 11–42, Truck K–43, Part II, Operation.

TM 11–363, Pole Line Construction.

TM 11–2253, Open Wire Construction for Fixed Plant Application.

RESTRICTED

SUGGESTED QUIZ

The suggested questions may be enlarged upon, or others substituted, to suit the local situation. They should be used to determine how much the audience has learned from seeing the film and what points need further clarification.

Correct answers are in italics.

a. To prepare a flatcar for loading, permanent stakes are placed on the far side of the car and skid poles are placed on the loading side. *True,* False.

b. Each man should use his own judgment and signal the winch operator any time he needs help on his job. True, *False.*

c. Poles are rolled onto the flatcar until the car is fully loaded; they are then leveled and bound down. True, *False.*

d. Before unloading a flatcar of poles, safety stakes are placed in the empty stake pockets to hold the load while the permanent stakes are being cut. *True,* False.

e. The poles are unloaded by slacking off on the binding line; this allows the poles to roll slowly down the skid poles. *True,* False.

f. Poles are loaded on a flatcar with butts and tops alternately placed to provide a level, compact load. *True,* False.

g. If all the poles do not roll off the flatcar, pike poles may be used to finish the unloading. *True,* False.

h. In loading poles on trailers, it is advisable to load the poles with (tops) (*butts*) forward so that a (*shorter*) (longer) tongue may be used.

i. When a mobile derrick unit or the Truck K-43 is used to load poles, the load line is fastened at the (middle) (*balance point*) (butt) of the pole.

j. After a trailer is loaded and the skid poles removed, the load is ready to be (dispatched) (*bound*) (gained).

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BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL
Chief of Staff

OFFICIAL:
J. A. ULIO
Major General
The Adjutant General

DISTRIBUTION:

Continental: SvC (5); A (1); CHQ (1); D (1); B (1); R (1); Bn (1); Sep Bn (1); Gen & Sp Sv Schs, ea 1,000 men (1); ASF TC, ea 1,000 men (1); AGF TC, ea 1,000 men (1); ASF UTC, ea 1,000 men (1); AGF RTC, ea 1,000 men (1)

Oversea: T of Opns (50); SvC (50); Island C (25); Base C (50); Def C (50); Depts (50); (No distribution to AAF Units)

For explanation of symbols, see FM 21–6.

U. S. GOVERNMENT PRINTING OFFICE: 1944

film, TF 21-1404, *Ground Action Against Air Attack.* The former is a film for specialist training of line construction, fixed radio station, and depot personnel of the Signal Corps. The latter is a basic film for the training of all military personnel. The former deals entirely with a physical operation and skill in its performance; the latter, with a state of mind as well as with physical skill.

Several important elements of good film use may be noted in these two instructor's film references. First, with both films, two different showings are recommended—but at *different times* and for *different purposes.* The showing of *Loading and Unloading Poles* was recommended for all personnel whose assignment might include the installation or storage of poles, and a second showing *late in the team training of construction units* for the purpose of emphasizing *precautions and efficient handling* of poles. Only for line construction personnel and only in a late stage of team training was the second showing recommended. Similarly in the case of *Ground Action Against Air Attack* two showings were recommended; the one in the *early stages of individual training* in defense against aircraft and the second in *unit training just before the unit undertakes actual practice* in the subject.

Second, the suggested introductory remarks vary, but in both cases the instructor is advised to amplify the introductory remarks, based on *his preview* of the film, so as to emphasize those points of instruction of special importance to *his* audience, during this showing, stressing the specific points *he* wishes his audience to look for. In the case of *Ground Action Against Air Attack,* it is suggested as a device for motivating close attention to the film that the instructor announce in advance of the film showing that a quiz will be given afterward to determine "just how much you have got out of it." Finally, in each of the suggested sets of introductory remarks, emphasis is laid on the meaning of the film *to the audience* and to situations in which this audience would likely find itself sooner or later.

In the third place, a variety of follow-up activities, each appropriate to the particular subject being taught, was suggested. There is flexibility in the prescription of these follow-up activities, as there

is in the recommended placement, methodology of use, and suggested remarks motivating and guiding audience observation. With *Ground Action Against Air Attack,* group discussion following the showing of the film is strongly recommended "since the message of the film is partly psychological." Discussion is also recommended to follow *Loading and Unloading Poles,* but not as a "must" of teaching method. With both films actual practice in the activity taught in the film is recommended, as is the use of other visualizations, such as the blackboard, film strips, and demonstrations. The training films, film strips, field and technical manuals available on the same or other phases of the subjects shown in the film are listed by number and title, and in the case of *Ground Action Against Air Attack,* instructors were alerted to the fact that new training films were in preparation on the subject of camouflage to replace the films listed in the reference.

Finally, a series of quiz questions, covering certain phases of the subjects dealt with in the films, were presented in each of the instructor's film references. By official suggestion—and the instructor's film references were official War Department documents published over the name of the Chief of Staff—the instructor was encouraged to enlarge upon the questions listed in the reference or to substitute other questions to suit the local situation. With forethought of possible contingencies, the correct answers to the quiz questions were indicated.

The Navy's instructor's guides followed the same general pattern with two notable additions: (1) they were illustrated, (2) they were published on recordings and teaching devices other than films.

The publication of teacher's guides for educational films has been standard practice for many years, but in general, they have lacked the clarity of intent and the conciseness of presentation that characterized those published by the armed services. Teacher's guides published by educational film producers were either little textbooks on the subject, too long, too vague, and too wordy; or, they were simply a reprint of the script. They were issued in various shapes and sizes, in the hope that they would be enclosed in the

film can and thus reach the teacher with the film. Because of the confusion in their purpose, variation in format, and vagueness of suggested method, the teacher's guide to educational films has had little weight or effect in improving the teacher's use of films.

The instructor's film reference was printed in size approximating the standard 8½ x 11 page that fits into the standard, large-size loose-leaf notebook. It never exceeded four pages, and more frequently all the pertinent information, including the hieroglyphics of "Distribution" that the Adjutant General's Department printed on all or almost all its publications, did not require more than one page, front and back. As a matter of information, the letters and numerals under "Distribution" indicate how many copies go to what unit in the Army's complex organization.

The development of the instructor's film reference guide in the Army did not proceed without growing pains. The suggestion that such guides be prepared by the Army schools which planned and initiated the films, so that they would be distributed when the film was distributed, was made to appropriate commands early in 1942. Two objections were raised. For one thing, the training literature and visual aids sections of the service schools which would prepare the instructor's reference were at that time heavily overloaded with the preparation of outlines and copy for films and film strips, field manuals and technical manuals. Preparation of guides on all films produced up to that date and on all films in various stages of preparation at that and future times, would, it was felt, be the straw that might break the camel's back. The choice seemed to lie between preparing the films themselves, and preparing the instructor's guides to the effective use of the films.

This objection is mentioned here because it is pertinent to a similar objection that may be raised by educational film producers today. By the same token that the agency responsible for initiation of the film in the Army training program was expected to prepare appropriate materials on the effective use of these films, educational film producers may be expected to perform the same service in connection with educational films—as many of them have, at least the best of the educational film producers. They may argue with impractical logic that they are too busy making films to under-

take the task of preparing new teacher's guides to effective methods of using all the films they have produced to date.

The second objection raised to the suggestion of preparation and publication of instructor's references on good film use was that Army instructors were expected to develop qualities of leadership, that good use of training materials was an essential part of the quality of leadership, and that the preparation of detailed guides on good use of training materials militated against the development of essential traits in the Army instructor by relieving him of the necessity of developing his own initiative and ingenuity in this respect. This second objection is mentioned because it can easily be voiced by educators against the preparation of suggestions on the utilization of educational materials, on the theory that "teacher knows best" or certainly should.

It is significant that these two objections seemed to dispose of themselves in the course of time in the Army training program. After the preparation of training materials had passed its peak, there was time for the preparation of instructor's film references. After wide experience in the use of these films, it was recognized that wide use and good use were not the same, and that an important element in training in leadership was the leadership exercised in helping young and/or inexperienced instructors to grow more proficient. The ultimate answer to both objections, as far as the Army is concerned, was that the instructor's film references were adopted officially by the War Department and became an integral part of the training film program. Perhaps because of the initial opposition to them, the final pattern of the instructor's film reference had a vitality, a simplicity, and a clarity lacking in its educational forerunner of teacher's guide.

For the information of the visual education coordinator, a system of film digests, which designated the intended audience, place of the film in the training cycle, and summarized the content of a film in from fifty to two hundred words, as appropriate, was developed before the instructor's reference was finally adopted, and a large digest binder to hold these digests, capable of amazing expansion, was distributed to all Army film libraries. The digest binder and the film digests, became an indispensable standard refer-

ence book of the coordinator and the instructor alike. With the adoption of the instructor's film reference, the usefulness of this reference book was extended.

This system of providing necessary information on available films apears to hold a key to a very knotty problem of educational films: the availability to the coordinator, and through the coordinator to the teacher, of adequate information on films appropriate to use within the curriculum of any school or other educational agency. General catalogues have a way of being buried in the files, and even when they are readily available, they are often more confusing than helpful to the teacher. In general, the content descriptions are necessarily brief, the areas of usefulness indicated only generally, and the suggestions regarding appropriate placement and methods of use vague or non-existent.

Were the size, the format, and general structure of teacher's guides to educational films to be standardized, and such guides prepared and issued in loose-leaf form on all films meeting acceptable educational standards, either by the producers or by some central educational agency, it would be possible to accomplish three things of major importance: (1) the coordinator in each educational institution could be provided with teachers' guides on only those films appropriate to that particular school, thus simplifying the teacher's choice of the appropriate film, (2) the teacher could prepare for effective film use in spite of the many vagaries that exist and for some time are likely to continue to exist in the supply of films in sufficient time to permit careful preview by the instructor, and (3) even the best teachers would profit from suggestions, references, quiz questions, discussion topics, etc., prepared by people who had given a great deal of time and thought to the subject, the film, and to the proper place and best ways of its use.

Selected Educational Motion Pictures, published by the American Council on Education, after a five year study and evaluation of available classroom films, contains a great deal of information helpful to teachers on the best of the educational films produced prior to the war. *The Educational Screen* publishes similar information from month to month on films produced since that date. These two sources are standard references for the visual educa-

tion coordinator until such time as desirable improvement and standardization of teachers' guides to educational films become an actuality. This latter step calls for staff coordination on the highest level in education as it did in both the Army and the Navy.

ACTUAL USE IN TEACHING

The fundamental techniques of motion picture use in teaching situations has been presented in several different contexts in the preceding pages and chapters: integration into the unit of teaching, motivation and directed observation, review and summarization of main points covered, and appropriate follow-up activities which extend and deepen the mastery of the subject (only part of which is covered in any film) and provide students with excellent experience in methods of study, creative activity, and the rigors of effective thinking.

A few other general observations yet remain to be made on good use of films. The first of these is that teachers, like Army and Navy instructors, must *discover* for themselves that educational motion pictures are good resource materials for teaching. Perhaps because the teaching values of motion pictures have been so widely publicized, and perhaps because the movies are so much a part of American life, teachers often assume, either consciously or unconsciously, that educational movies, when shown in school, are valuable experiences of themselves. It takes time and experience for teachers to discover that when educational methods are applied to educational films the use of films in school produces better results than when films are simply exhibited in school as they are in the movie theater. This development can be facilitated by increased attention to films as educational resources in teacher training, both pre-service and in-service, by frequent previews by teacher groups of films in the subject or grade areas in which they are teaching during which ample opportunity is provided for discussion of ways of using the films previewed, by discussion in professional journals of effective methods of using films, by critical reviews of films as teaching materials in professional journals, and by demonstrations of good methods of film use at professional meet-

ings of teachers. The coordinated approach to this problem through the many agencies and instruments of teacher education and curriculum development is essential to any kind of broad solution of the problem. The activities of the coordinator, and the supply of teacher's guides similar to those developed in the war-training program, are avenues to a growing awareness on the part of the teacher of educational films as resource materials and to growing competence of the teacher in the effective employment of films as teaching resources.

The second general observation deals with the number of films that can be profitably shown at one session. To the research results on the values of introductory and review exercises in increasing the learning from a film that were reviewed in the first chapter, can be added the results of another study, conducted by the Research Branch, Information of Education Division, on results obtained in long and short training film sessions. This study bears directly on the practice, more prevalent in schools than educators like to admit, of showing several educational films at one time. The following is quoted from the unpublished report of the Army's study of this problem:

"The question of how long training film sessions can last and still be effective often arises in connection with the planning of training programs. Some have held that film sessions should be kept extremely short—that with long sessions men became sleepy and bored, their attention wanders, and consequently they learn little from the material presented. Others have maintained that sessions may run several hours before serious adverse effects are felt, and that the convenience of scheduling long sessions offsets any slight disadvantages which might obtain."

These, in essence, are the same set of contentions that are found in practice in educational institutions. Those who have been professionally engaged in visual education activities have urged that only one film be shown to one class at a session. Those who have suffered the administrative difficulties of carrying out precisely this prescription have, in practice, contended for longer film sessions and more films in a session.

To obtain light on the problem of the length of an educational film session, two standard training films on first aid (TF 8-33 and TF 8-150), of approximate length and approximate difficulty, were shown to two groups of men in an Infantry Replacement Training Center. The groups consisted of 350 men each, equated with respect to intelligence, formal education, and other relevant factors. The first group (the *Long Session Group*) was shown both films consecutively in a session lasting approximately an hour. The second group (the *Short Session Group*) were shown one film at a half-hour morning session, and the second film at a half-hour afternoon session. A written test on the two films was administered both groups twenty-four hours after the film sessions.

TABLE VI

AVERAGE PERCENTAGE OF NEW MATERIAL IMPARTED

	Long Session Group	Short Session Group
First Film	41%	41%
Second Film	30%	37%

Results of the test are shown in Table VI. It can be seen that there was no discernible difference in percentage of material learned from the *first* film between the *Long Sessions* and the *Short Sessions* groups. However, the *Long Sessions* group learned less new material from the second film than did the *Short Sessions* group.

When the scores of written tests were analyzed in terms of the learning abilities of the audiences, it was found that almost all the differences between the two groups were accounted for by the slower learners within the two groups. The results of this analysis are shown in Table VII. (Rapid learners are defined as those falling in AGCT classes I and II, and slow learners as those falling into AGCT classes III and IV.) From an examination of the table

it can be seen that there was a difference of only 1 percent among rapid learners in the average amount of new material learned from the film shown second in the long and in the short sessions, but that the average amount of material learned by slow learners from the second film was considerably higher (35 percent) for the *Short Sessions* group than for the *Long Sessions* group (27 percent).

TABLE VII

AVERAGE PERCENTAGE OF NEW MATERIAL IMPARTED BY LAST FILM SHOWN

	Long Session Group	Short Session Group
Rapid Learners	45%	46%
Slow Learners	27%	35%

The research report concludes with these words:

"It can readily be seen from the above results that the low AGCT group, who learn relatively less from a film showing in the first place, are the very ones most adversely affected by the long film sessions."

These results are particularly significant for those educators who look to films as a medium of teaching for their slow learning groups. As indicated in Table III of Chapter I, slower learners learn considerably less from a film than do faster learners. As indicated in Table VII, they learn even less when there are multiple film showings at one sitting, and the loss is greater from the second film shown than from the first.

The third general observation on good use of films has to do with careful analysis of the material covered in the films. Motion pictures are, despite their many other values, a temptation to passivity on the part of both teachers and students. Much of the poor or indifferent use of films in teaching comes when teachers neglect to look at an educational film, either in preview or during

the showing of the film in the classroom or visual education laboratory, much the same way as Mortimer Adler advocates that a book be read—sitting up straight on the chair at a desk, with pencil in hand, jotting down notes, organizing scenes into sequences, and sequences into major ideas, and major ideas into major principles. When this procedure is followed, it is interesting to see how much information is really presented in a film, to observe the number of major points covered, to match up the facts against the generalizations presented in the film, to find out how much is not covered in the film, how many topics are open to further discussion and investigation, and how much more must really be learned to develop a fundamental understanding, not of the film itself but of the subject presented in the film.

The introductory remarks of the teacher and/or the lead-up activities of the class go a long way to determining how much a class will learn from a film. The follow-up activities determine how much more the class will learn about the subject or subjects presented in the film. Follow-up activities are most fruitful when the film showing is accompanied by analytical observation of the material covered in the film, the organization of this material by the class after the film showing, and the pursuit in follow-up activities of the things that were not covered or poorly covered in the film. Note-taking, at least written note-taking, during film showing may be difficult in a darkened room, but it is very necessary if both the teacher and the class are to get the most out of a film. Looking at a film is much like reading a book. It can be skimmed or studied. It can be simply enjoyed, or thoughtfully analyzed. It can be put aside without further consideration, or followed by discussion, further investigation, experiment, field trips, additional reading, and some form of expressive activity. As with any other kind of educational material, the class will get the most out of a film when both teacher and students make careful, advance preparation for using it in class, and thus are able to intelligently and effectively progress into those activities which are the dynamic outgrowths of films well conceived, produced with clear purpose for specific audiences and maturity levels, incorporating good teaching techniques, and available at the proper time for as long as needed.

NOTES

CHAPTER 1

THE RESEARCH STUDIES from which data are quoted in this and later chapters were made either by the Research Section, Army Pictorial Service or the Research Branch, Information and Education Division. Dr. Lester F. Beck, of the Psychology Department, University of Oregon, was in charge of the Army Pictorial Service's research, when the studies were made. Later he served as a Lieutenant, USNR, in the Navy's film utilization program. He was assisted in his research studies, and in the development of test and statistical computation by Ben Winer, formerly of the American Council on Education's Cooperative Test Service, who served as a T/3 in the Signal Corps, and in statistical computation and analysis of film distribution and utilization reports by Jack Peterman, who, prior to service in the Signal Corps as a T/3, was on the radio research staff headed by Paul Lazarsfeld. Fred Kelley, formerly of Pennsylvania State College, also assisted in the statistical studies of film distribution, and of the effect of the assignment of coordinators. The Research Branch of the Information and Education Division was under the direction of Dr. Charles Dollard, of the Carnegie Corporation, who held the commission of Lieutenant Colonel in the Army. Dr. Dollard was assisted by a staff of competent psychologists and statisticians, drawn largely from universities where they were previously engaged in psychological research and measurement. The account of the use of film strips in the training of illiterates is based upon published reports by Dr. Paul Witty, of Northwestern University, who was in charge of the training of the Army's illiterates. He served as a Major in the Adjutant General's Department.

Some of the studies referred to were published by the War Department and others are in manuscript form only. All studies were classified as restricted or higher. In view of this classification, it serves no useful purpose to cite the full reference to these published and unpublished studies. However, all tables and all descriptions of experimental situations, have been taken directly from these studies, and the data and descriptions of experimental procedure and situations, have been cleared by the War Department for purposes of this publication.

Differences in results from film showing discussed in this chapter can be regarded as statistically reliable. In the original published studies note was made that statistical procedures were applied and that the gains noted are not chance gains. There is some possibility that some of the data cited with reference to performance of selectees with grade school education and selectees with high school and college education may not have been treated for reliability since these data are taken from a preliminary report in manuscript form. However, the differences are great enough, and the experimental methods of the research workers sufficiently rigorous, to asume that the data have statistical significance.

CHAPTER 2

It is recognized that the chart which contrasts purposes for which films were used by the Army with those for which films were used in the school may be and probably is overdrawn to the detriment of the schools. The chart is used for dramatic effect, but it is closer to a correct representation than to an incorrect one. Films do not easily fall into black and white classifications. Some films used for "instruction" in schools have definite orientation values, but, in most cases, it is doubtful whether those who made the films would agree that the films were "orientational" rather than "instructional", even though they have orientational effects.

CHAPTER 3

All data on film utilization are taken from film distribution and utilization reports of the Army Pictorial Service. Monthly reports were gathered over a long period of time on the number of prints of each film subject and the number of uses of these prints in training camps in the United States served through facilities operated under staff supervision of the Chief Signal Officer. These reports were invaluable, not only in increasing the efficiency of distribution and the extent of utilization, but also as a guide to training agencies in planning new films and in evaluating the usefulness of those produced. In exercising supervision over the distribution and use of films in a program as extensive as that of the Army, systematic reports of film stock and print utilization are essential. Otherwise, a film utilization program is necessarily an affair known either by guess or by anecdote and distribution is hopelessly wasteful or inefficient.

CHAPTER 4

The five guiding principles of new film production discussed in this chapter may appear to be contradictory. They are not meant to be so. They are

presented as bases for production planning. Obviously, they individually deserve greater or less weight under varying circumstances. For example, the idea that films should be produced in accordance with demand as demand is expressed in terms of present usage of films is inapplicable when applied to areas where few or no films are available, such as in physical education or science in the elementary school. On the other hand, the idea that films should spearhead curriculum development, and should incorporate the best in curriculum procedure, is of great importance in elementary school science and physical education, since both these areas stand in need of materials which will materially assist teachers in opening up these curriculum areas to student activity.

There probably should be some discussion of the teacher with reference to the production of films. An unfilled gap between the subjectmatter specialist and the professional moviemaker exists unless one or the other of them has teaching experience on the grade or maturity level for which the film is produced. Some place in production planning the teacher must be brought in to ensure the *teachability* of the film. Ideally, the scriptwriter should be a teacher-writer. But rather than risk a good teacher who is a poor writer, the emphasis has been laid in this chapter on the *professional* writer rather than on the *professional teacher*. The purpose of this emphasis is to dramatize the fact that educational materials should not be second-rate literary or artistic products. The intelligent producer will not omit the teacher from film production. The danger is that he will compromise with mediocre professional motion picture production talent.

CHAPTER 5

It is recognized that the point of view set forth in this chapter that teaching methods be built into teaching films is at variance with the conclusions expressed by Reginald Bell, Leo Cain, and Lillian Lamoreaux, in their superb report on *Motion Pictures in a Modern Curriculum*, published in the American Council on Education Studies, (Wash., D. C.) May, 1941. This departure in point of view is considered and deliberate, not because there is any reason to question the conclusions reached by Bell, Cain, and Lamoreaux in their report of the use of film in the Santa Barbara (Cal.) schools, but because there is reason to suspend the universal application of their conclusions at this time. Their position was that teaching methods should be supplied by the teacher not by the film. Ideally, there can be no quarrel with this position, but, practically, much work remains to be done in education before films can be produced exclusively for use by the ideal teacher.

Two other publications of the American Council on Education contain material dealing with audience reaction to motion pictures, and hence, bear

on the techniques of teaching applicable to films. *A School Uses Motion Pictures*, by the staff of Tower Hill School, (Sept., 1940), is rich in insights into the reactions of children through the grades and high school to educational films, and Chapter 3 of *Focus on Learning*, by Charles F. Hoban, Jr., (1942) deals with reactions in terms of interest factors, and maturity levels, and discusses misconceptions from films and their source.

CHAPTER 6

This and the next chapter is heavy with reference to schools and colleges, and omits consideration of films in forums, in religious education, and in adult education programs. This is only because these latter are largely in their inception in this country at the present time. A hopeful new publication, *Film Forum Review*, appeared in the Spring of 1946, published by the Institute of Adult Education, Teachers College, Columbia University, in cooperation with the National Committee on Film Forums. The *Educational Screen* (Chicago) has recently established a department dealing with films in religious education, and the *Business Screen* (Chicago) devotes considerable space to films in industry, industry training, and related matters. The *Business Screen* has also published separate issues on the film program of the Army, the Navy, and the U. S. Office of Education. Each of these issues contains valuable detailed information.

Certainly, a distribution network is essential to the use of films by educational agencies other than schools and colleges. The problems of distribution were discussed with reference to formal education primarily to stimulate thought and action toward adequate and efficient film supply channels and procedures for schools and colleges since they are the natural place to begin the organized use of films as basic teaching materials. It may be expected that if adequate distribution agencies are set up and operated to serve schools and colleges, they will be utilized by the other educational agencies of society. Should this not prove to be the case, there is need for additional commercial distribution agencies which operate in a network to serve the non-theatrical motion picture market in accordance with the fundamental principles of film distribution and film library service discussed in this chapter. It is lamented in many quarters that no national distribution system has been established in this country to serve the large non-theatrical audience which was reached during the war with morale film distributed in 16mm by OWI, and bring to the millions of men and women who served in the armed forces the kinds of orientation and information films they had grown accustomed to and found so valuable during the war.

CHAPTER 7

This chapter deals almost entirely with organization for effective film use in education. It was in the organization and administration of the film utilization program that such great progress was made by the Army and the Navy, rather than in the development of new techniques of effective use of films in teaching. This development is in sharp contrast to the situation in the schools. There is no doubt that individual classroom teachers are doing an excellent job of using films in education, just as individual Army and Navy instructors did during the war, but there are few states that can approach the organization developed by the Army and the Navy to implement effective use of films on a broad scale.

For discussion of effective use of films in education, the reader is again referred to *Motion Pictures in a Modern Curriculum*, *A School Uses Motion Pictures*, and *Focus on Learning*, published by the American Council on Education. Another of the American Council on Education Studies, *Projecting Motion Pictures in the Classroom*, by Francis W. Noel, (Dec. 1940) is invaluable in its suggestions for overcoming some of the physical difficulties of using films in school. Mr. Noel served as Lieutenant Commander in the Navy during the war, in charge of the Navy's film utilization program.

There has been no discussion in this book of the production of films by schools and colleges. The subject is unpopular with some educational film producers since, theoretically, the more money spent in local production of school films the less money available for purchase of films produced commercially. Yet, it is obvious that commercial film producers cannot hope to make films which completely cover local needs, and it is likewise obvious that films are more than *instructional* devices. They are devices for teacher education as well, and for informing the public of the kinds of programs the schools are developing for their children.

One of the significant developments in educational motion pictures immediately before the war was the production of films dealing with community problems by Denver high school students, reported in *Students Make Motion Pictures*, by Floyde E. Brooker and Eugene H. Herrington, in the American Council on Education Studies (May, 1941). Mr. Brooker served with the United States Office of Education during the war, in charge of the film production program for war training. The reader is urged to consult this, and the other publications mentioned in these notes for a fuller picture of motion pictures in education than has been given in this brief summary of the use of films during the war.

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